New Hampshire Groundwater Level Monitoring

May, 2021

New Hampshire Geological Survey
29 Hazen Drive, PO Box 95
Concord, New Hampshire 03302-0095

June 3, 2021

GROUNDWATER CONDITIONS SUMMARY

The Northeast Regional Climate Center (NRCC) at Cornell University has yet to release their May precipitation statistics. Another source of precipitation statistics, the National Drought Management current conditions web page indicates that most of the state is at or less than 100% of normal precipitation over the last 30 days. Of that approximately half the state has received less than 50% of normal precipitation. Figure 1 shows the distribution of percent precipitation, published by NRCC, and water levels in the well network.

Abnormally dry (D0) conditions dominate, covering 90% of the state, while two areas in the Connecticut River Valley are classified as moderate drought (see Figure 2).

Across most of the state network wells, groundwater declines have generally been observed. Most wells are showing levels this month below their monthly averages, for those that are calculated. The only wells with groundwater levels that are within the normal or above-normal ranges are Nashua, New London, Barnstead, and two Concord bedrock wells. As shown by Figure 2, the downward groundwater level trend corresponds well with the drought classifications across the state.

Figures 1 and 2 show the monthly status of groundwater levels for both bedrock and overburden wells in the network. Only wells with a period of record (POR) 10 years or more are placed within statistical categories of low through high (symbols red through blue, respectively). Bedrock wells are installed into bedrock and overburden wells are installed in the unconsolidated materials above bedrock.

The New Hampshire Geological Survey's groundwater monitoring network (Figures 1 and 2) currently includes 11 bedrock and 20 overburden observation wells, all of which are measured monthly by hand. Using the monthly hand readings, monthly averages and percentile statistics were calculated and are summarized in Figures 1 and 2, the following hydrographs*, and in Table 1.

*The hydrographs show the following data over a period of 12 months: (1) monthly groundwater depths in red, (2) the monthly average over the period of record (POR) of the well in black, and (3) color-coded statistical ranges over the POR of the well. Note the POR is listed below each month's column on the chart and reported as the number of measurements for that respective month. This might include multiple readings in the same month and does not include any gaps in data so therefore may not represent a continuous period. A second set of hydrographs are also included and depict a statistical envelope of 15% and 85% values along with the current year monthly reading and median.

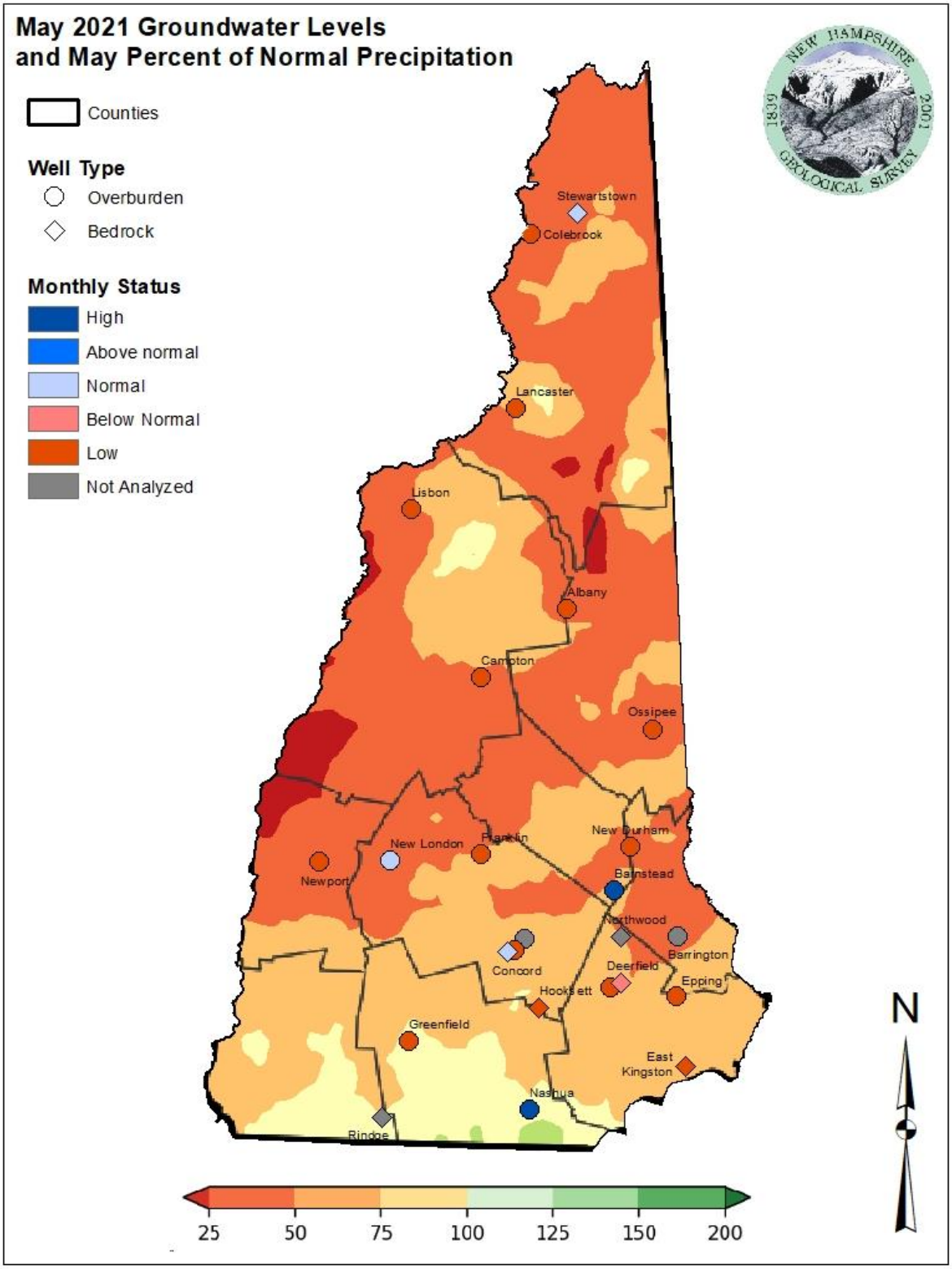


Figure 1. Groundwater Monitoring Network showing groundwater levels relative to statistical envelopes calculated over each well's period of record (POR) and percent normal precipitation map for May, 2021 (Northeast Regional Climate Center).

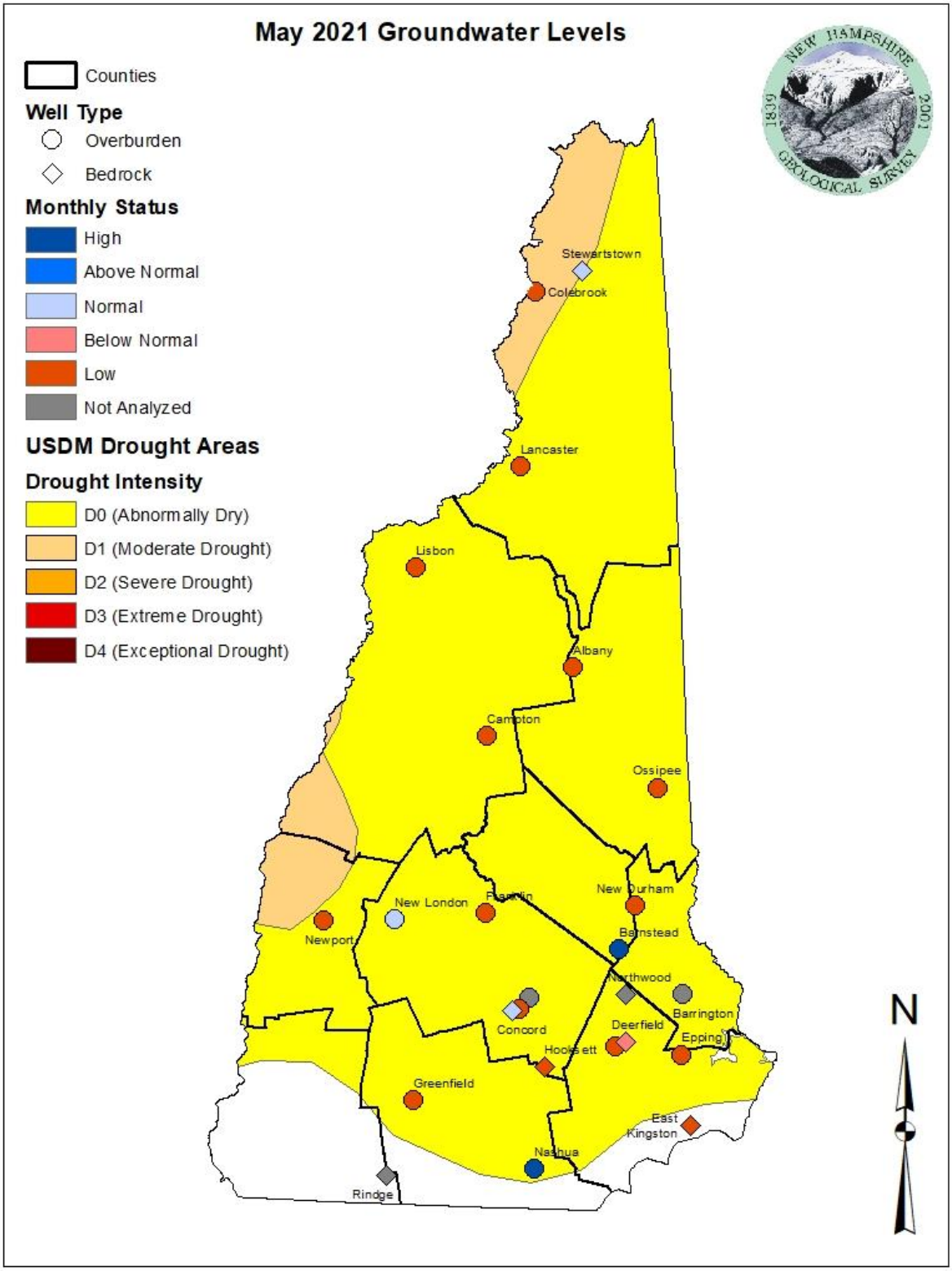
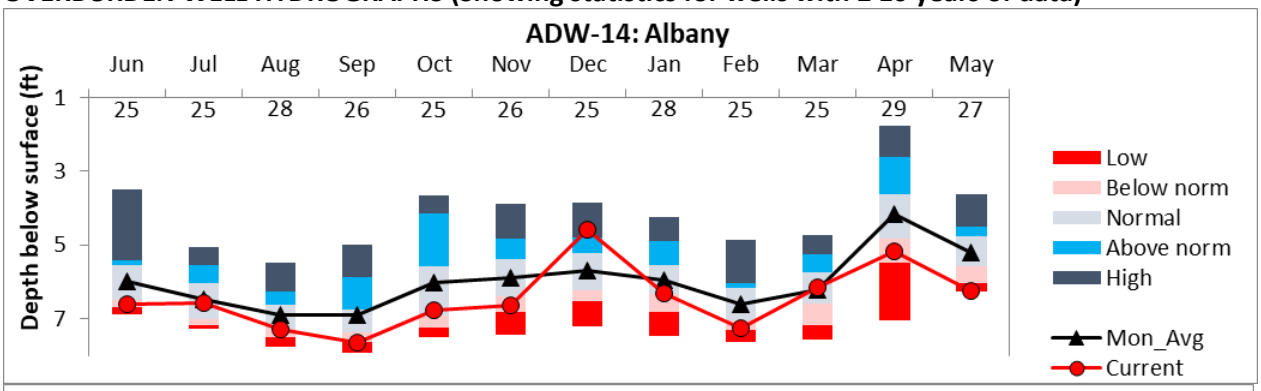


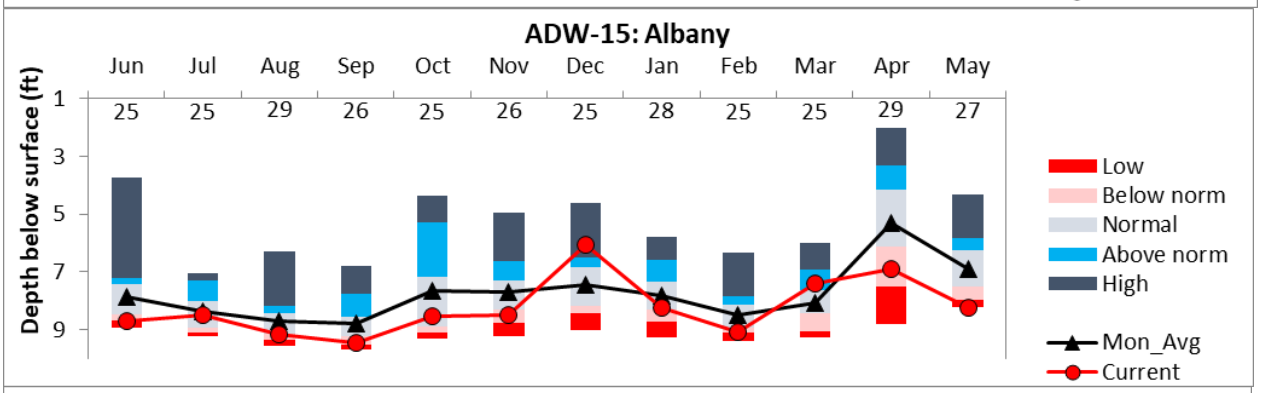
Figure 2. Groundwater Monitoring Network showing groundwater levels relative to statistical envelopes calculated over each well's period of record (POR) and drought areas according to data released by the U.S. Drought Monitor on June 1, 2021.

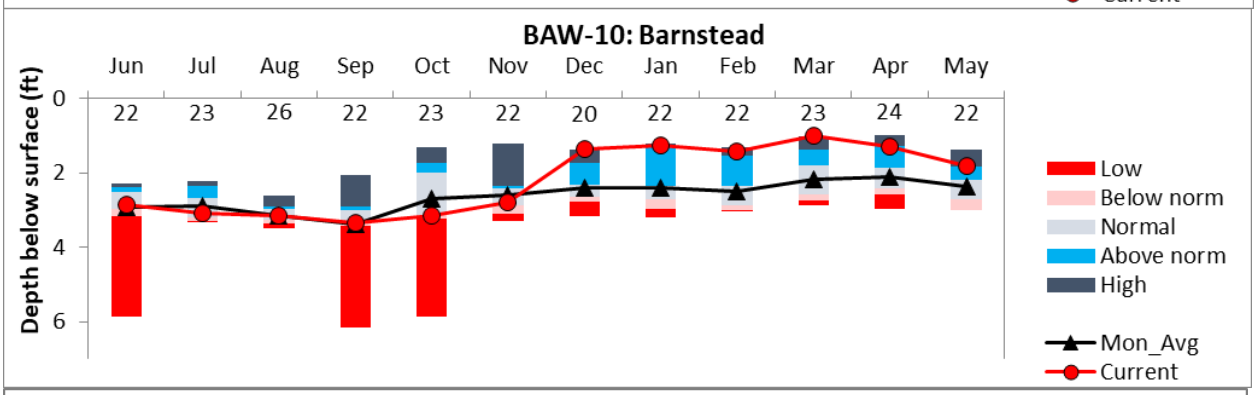
Table 1. Summary of groundwater levels sorted by region (dark blue – high, blue – above normal, light blue – normal, pink – below normal, red – low.

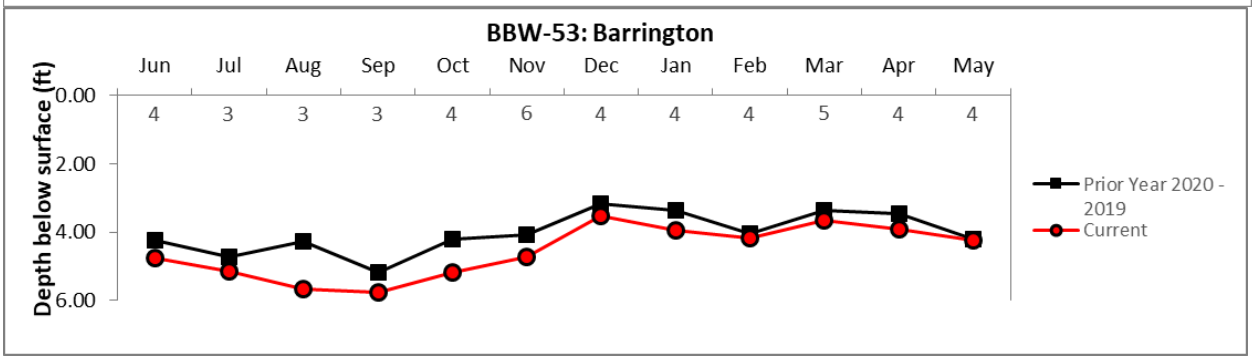
Well	Town	Well type	Screen/ open Interval (ft)	Depth to Water (ft)	Monthly Average (ft)	Current Status	Departure from Avg. (ft)	Change since last month (ft)
ADW-14	Albany	Overburden	77.5-79.5	6.26	5.19	Low	-1.07	-1.08
ADW-15	Albany	Overburden	16-18	8.22	6.88	Low	-1.34	-1.32
BAW-10	Barnstead	Overburden	23-25	1.8	2.38	High	0.58	-0.52
BBW-53	Barrington	Overburden	21-23	4.22		Not Analyzed		-0.31
CBW-34	Campton	Overburden	21-23	12.61	11.62	Low	-0.99	-0.43
CTW-73	Colebrook	Overburden	105-107	7.8	7.28	Low	-0.52	-0.3
CVW-02.1	Concord	Overburden	59.8-61.8	42.04		Not Analyzed		-0.25
CVW-04	Concord	Overburden	25-27	17.66	16.29	Low	-1.37	-0.08
DDW-46	Deerfield	Overburden	59.8-61.8	39.07	38.06	Low	-1.01	-0.02
EPW-90	Epping	Overburden	39.45-40.7	28.38	26.71	Low	-1.67	0.06
FKW-01	Franklin	Overburden	45.5-47.5	13.55	10.48	Low	-3.07	0.62
GSW-75	Greenfield	Overburden	35.8-37.8	63.15	60.47	Low	-2.68	0.21
LCW-01	Lancaster	Overburden	28-30	2.74	1.33	Low	-1.41	-0.46
LLW-19	Lisbon	Overburden	49.8-52.3	14.1	13.34	Low	-0.76	-0.22
NAW-218	Nashua	Overburden	66-68	26.68	27.29	High	0.61	0.12
NFW-53	New Durham	Overburden	28-30	19.21	18.84	Low	-0.37	-0.17
NLW-01	New London	Overburden	40-42	6.81	6.24	Normal	-0.57	-2
NPW-03	Newport	Overburden	40.5-42.5	6.67	5.46	Low	-1.21	-0.3
NPW-06	Newport	Overburden	58-60	7.23	5.56	Low	-1.67	-0.34
OXW-38	Ossipee	Overburden	0-22.55	35.66	34.38	Low	-1.28	0.08
CVWB-01	Concord	Bedrock	470-480	22.88	22.17	Normal	-0.71	-2.82
CVWB-02	Concord	Bedrock	0-315	16.86	15.9	Normal	-0.96	-2.74
DDWB-01	Deerfield	Bedrock	0-300	17.05	16.28	Below norm	-0.77	0.3
EAWB-01	East Kingston	Bedrock	463-473	22.53	22.34	Below norm	-0.19	-0.17
EAWB-02	East Kingston	Bedrock	0-323	21.98	21.26	Low	-0.72	-0.52
HTW-05	Hooksett	Bedrock	0-102.7	48.61	46.56	Low	-2.05	0.28
NWWB-01	Northwood	Bedrock	0-130	5.83		Not Analyzed		-2.69
RGWB-01	Rindge	Bedrock	391-401	14.38		Not Analyzed		-0.11
RGWB-02	Rindge	Bedrock	0-285	17.1		Not Analyzed		-0.12
SOWB-01	Stewartstown	Bedrock	443-453	15.05		Not Analyzed		1.7
SOWB-02	Stewartstown	Bedrock	0-303	16.8	16.11	Normal	-0.69	0

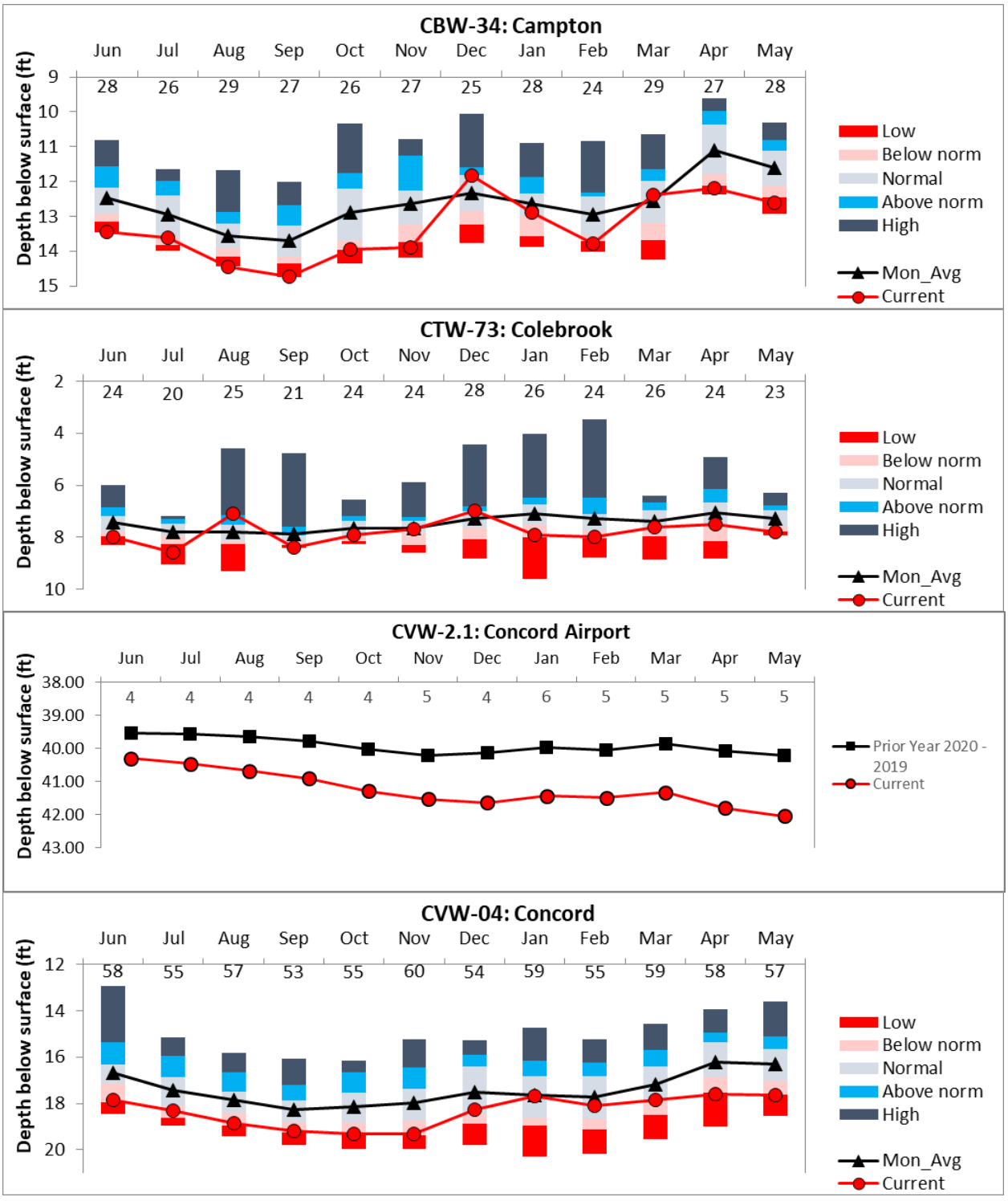
OVERBURDEN WELL HYDROGRAPHS (Showing statistics for wells with ≥ 10 years of data)

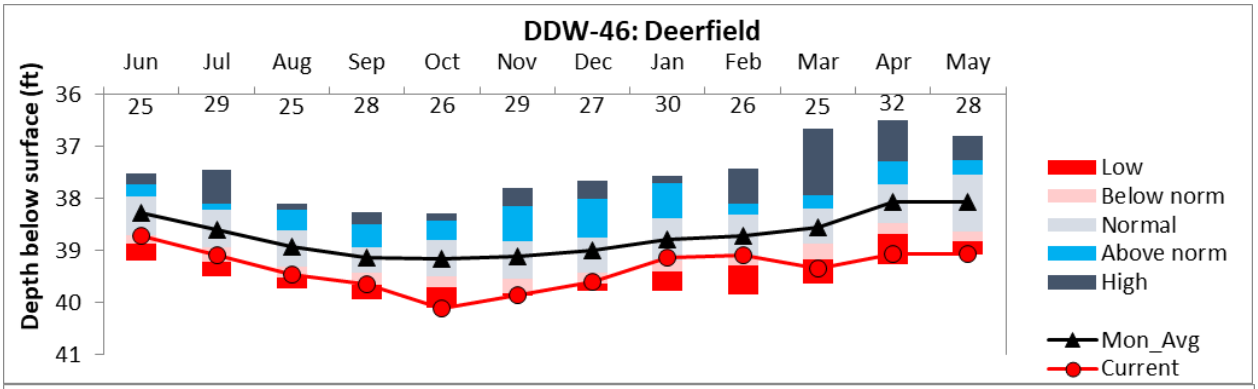


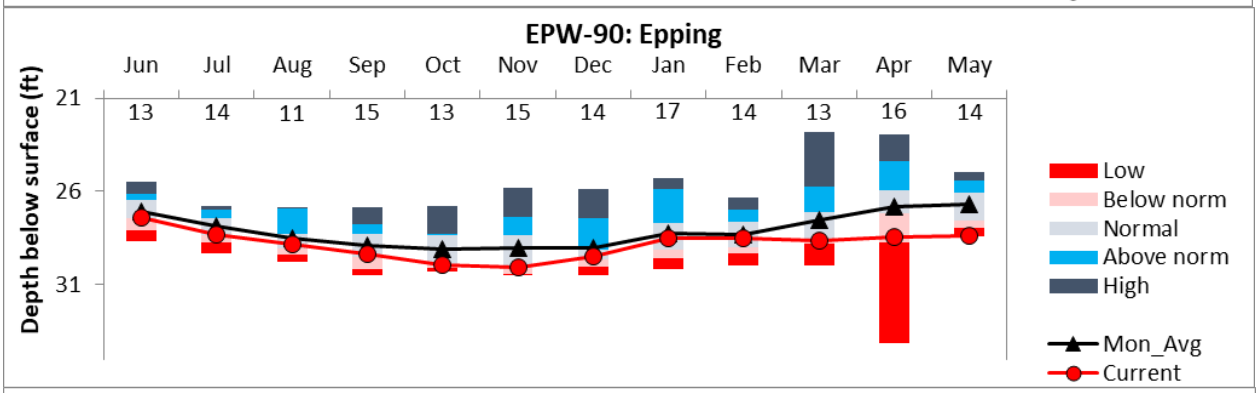


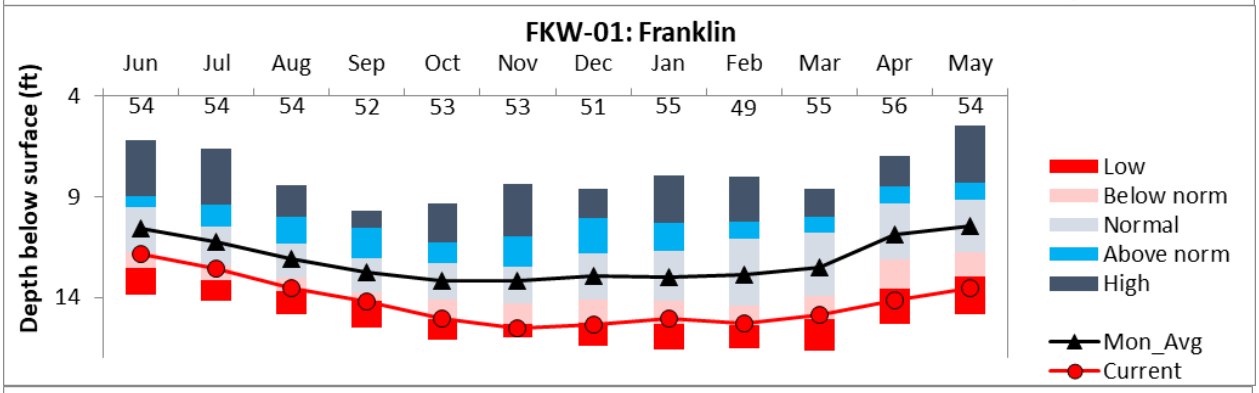


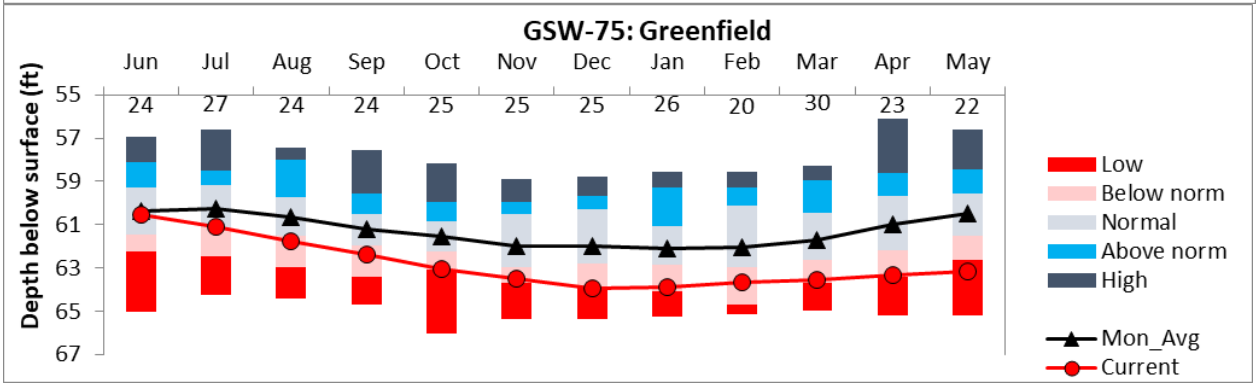


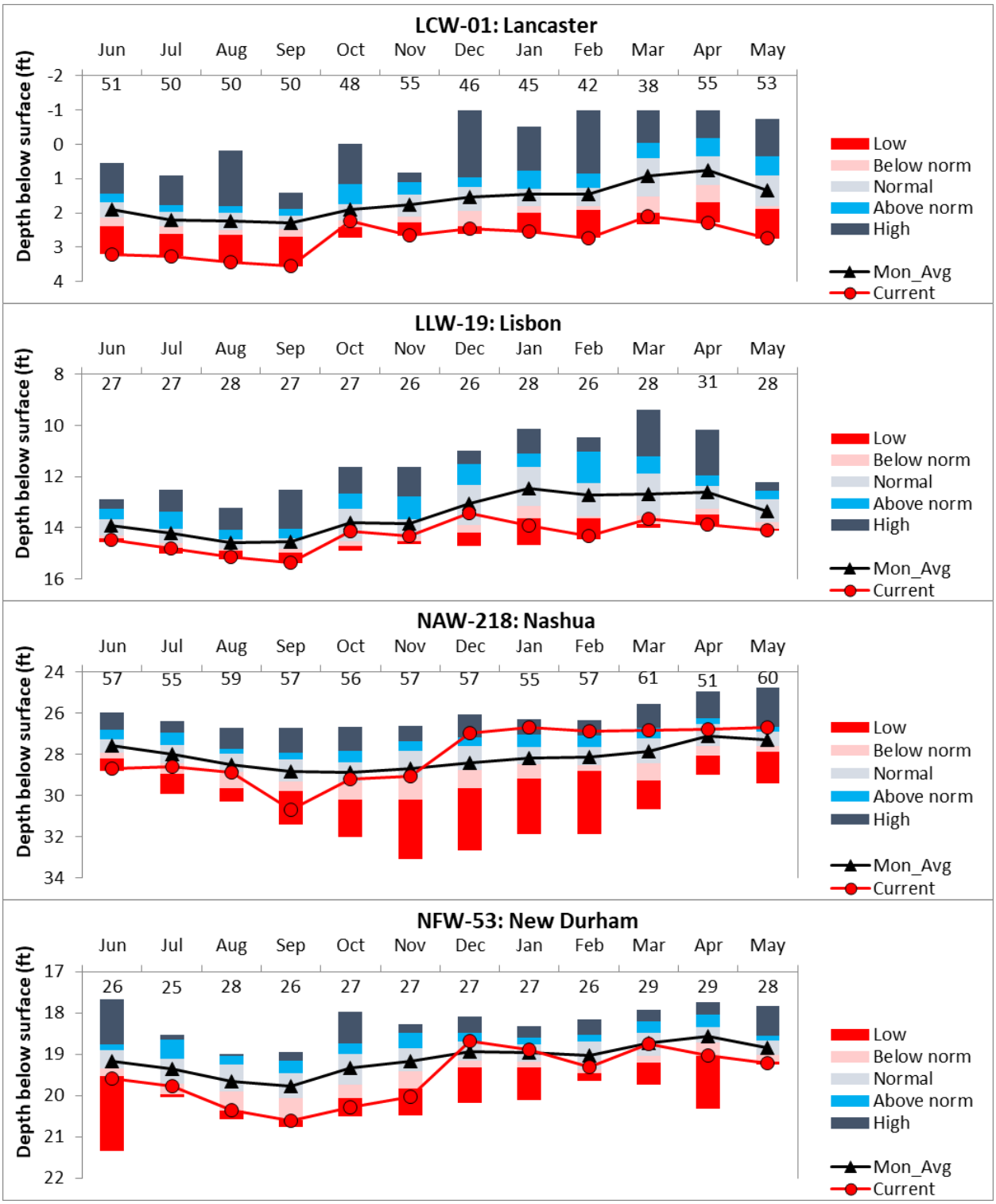

CBW-34: Campton
Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May
28 26 29 27 26 27 25 28 24 29 27 28
Depth below surface (ft)
9 10 11 12 13 14 15
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current
CTW-73: Colebrook
Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May
24 20 25 21 24 24 28 26 24 26 24 23
Depth below surface (ft)
2 4 6 8 10
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current
CVW-2.1: Concord Airport
Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May
4 4 4 4 4 5 4 6 5 5 5 5
Depth below surface (ft)
38.00 39.00 40.00 41.00 42.00 43.00
Prior Year 2020 - 2019
Current
CVW-04: Concord
Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May
58 55 57 53 55 60 54 59 55 59 58 57
Depth below surface (ft)
12 14 16 18 20
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current

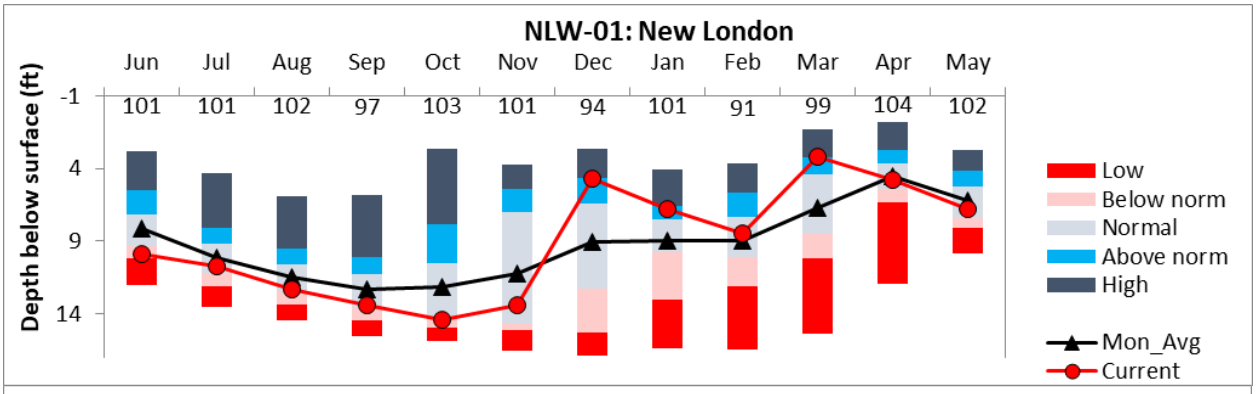

DDW-46: Deerfield
Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May
25 29 25 28 26 29 27 30 26 25 32 28
Depth below surface (ft)
36 37 38 39 40 41
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current

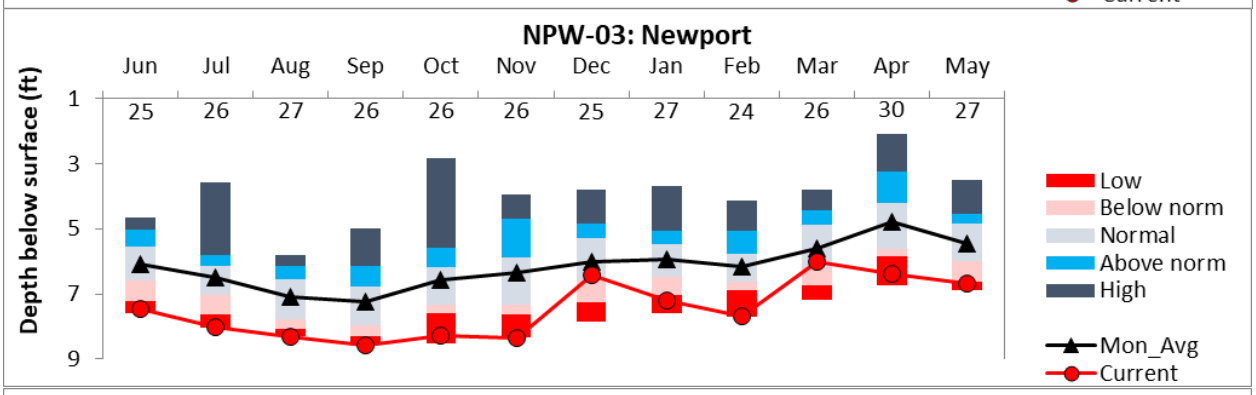

EPW-90: Epping
Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May
13 14 11 15 13 15 14 17 14 13 16 14
Depth below surface (ft)
21 26 31
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current

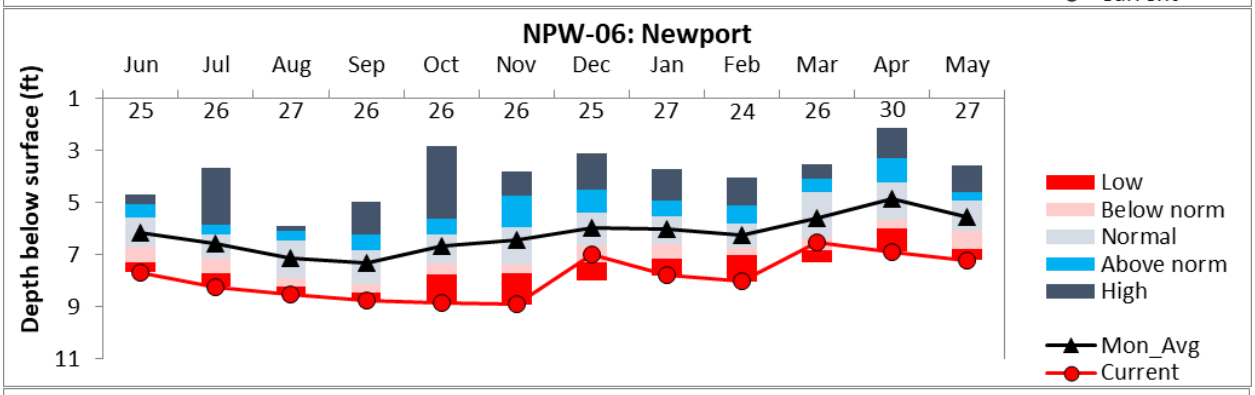

FKW-01: Franklin
Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May
54 54 54 52 53 53 51 55 49 55 56 54
Depth below surface (ft)
4 9 14
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current

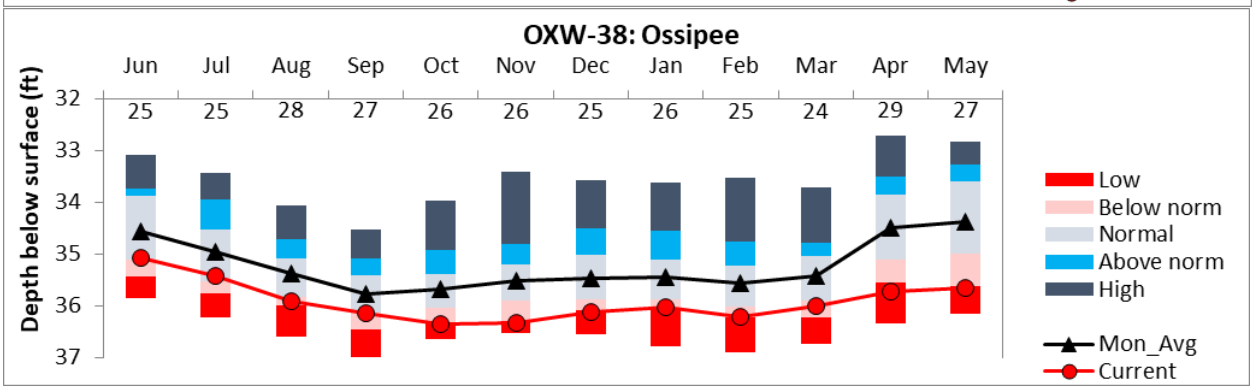

GSW-75: Greenfield
Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May
24 27 24 24 25 25 25 26 20 30 23 22
Depth below surface (ft)
55 57 59 61 63 65 67
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current


LCW-01: Lancaster
Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May
51 50 50 50 48 55 46 45 42 38 55 53
Depth below surface (ft)
-2 -1 0 1 2 3 4
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current
LLW-19: Lisbon
Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May
27 27 28 27 27 26 26 28 26 28 31 28
Depth below surface (ft)
8 10 12 14 16
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current
NAW-218: Nashua
Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May
57 55 59 57 56 57 57 55 57 61 51 60
Depth below surface (ft)
24 26 28 30 32 34
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current
NFW-53: New Durham
Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May
26 25 28 26 27 27 27 27 26 29 29 28
Depth below surface (ft)
17 18 19 20 21 22
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current

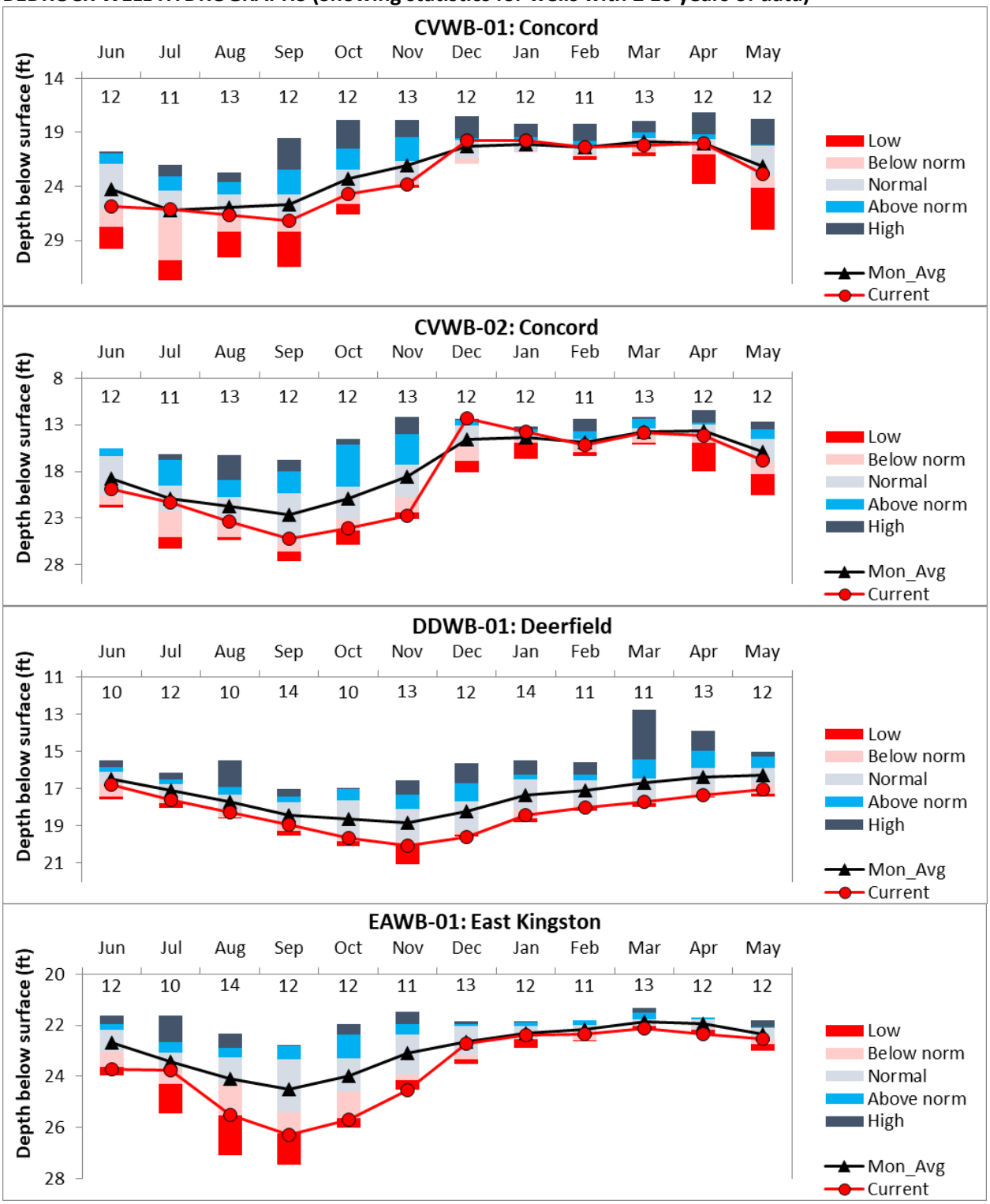

NLW-01: New London
Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May
101 101 102 97 103 101 94 101 91 99 104 102
Depth below surface (ft)
-1
4
9
14
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current

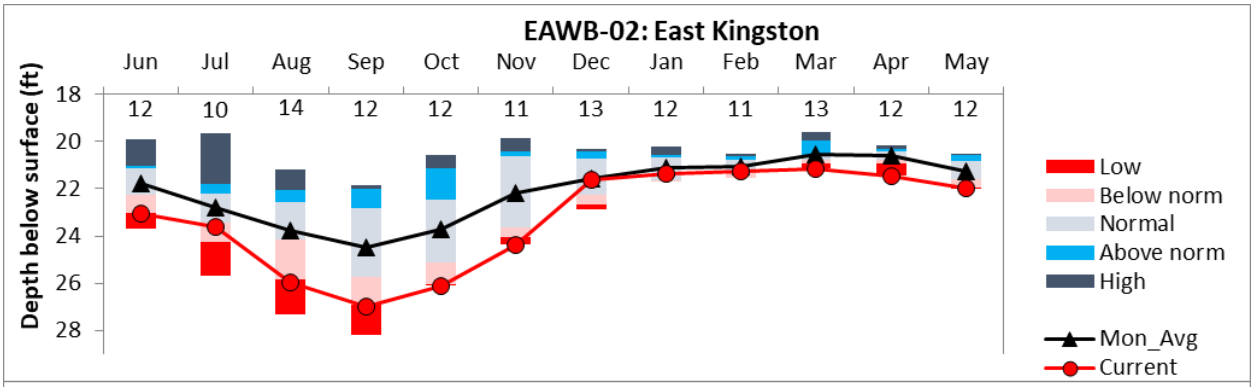

NPW-03: Newport
Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May
25 26 27 26 26 26 25 27 24 26 30 27
Depth below surface (ft)
1
3
5
7
9
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current

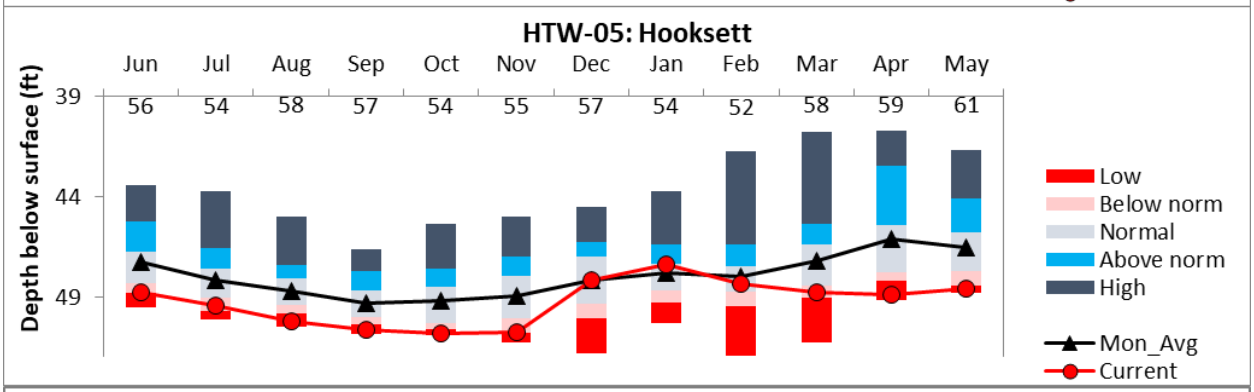

NPW-06: Newport
Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May
25 26 27 26 26 26 25 27 24 26 30 27
Depth below surface (ft)
1
3
5
7
9
11
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current

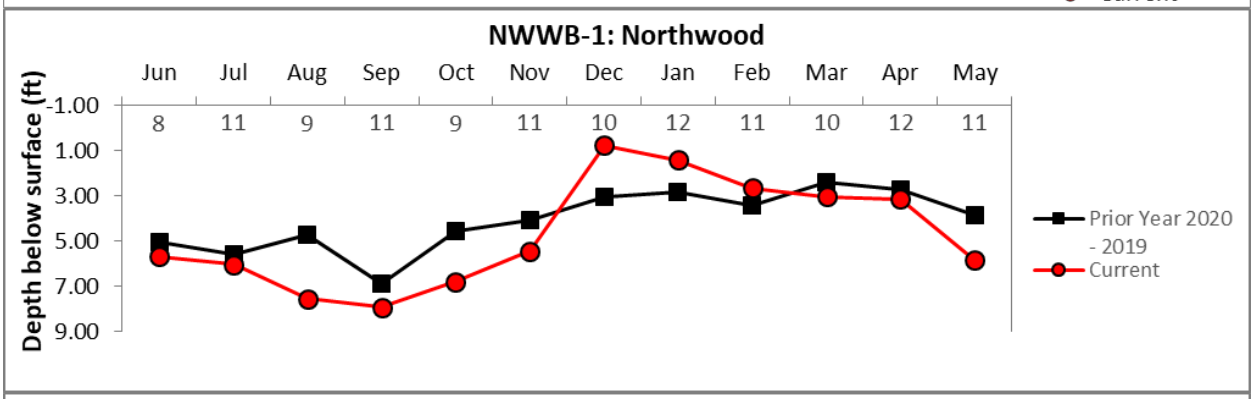

OXW-38: Ossipee
Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May
25 25 28 27 26 26 25 26 25 24 29 27
Depth below surface (ft)
32
33
34
35
36
37
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current

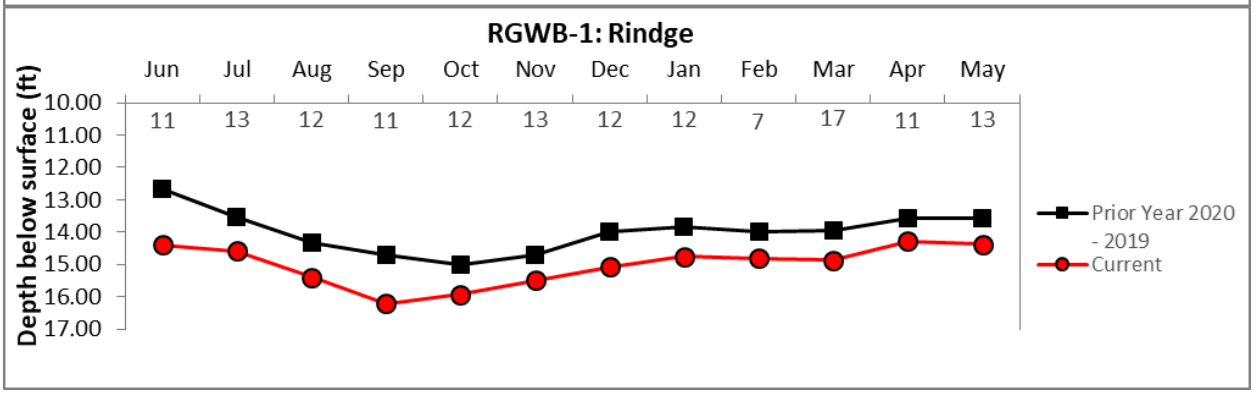
BEDROCK WELL HYDROGRAPHS (Showing statistics for wells with ≥ 10 years of data)

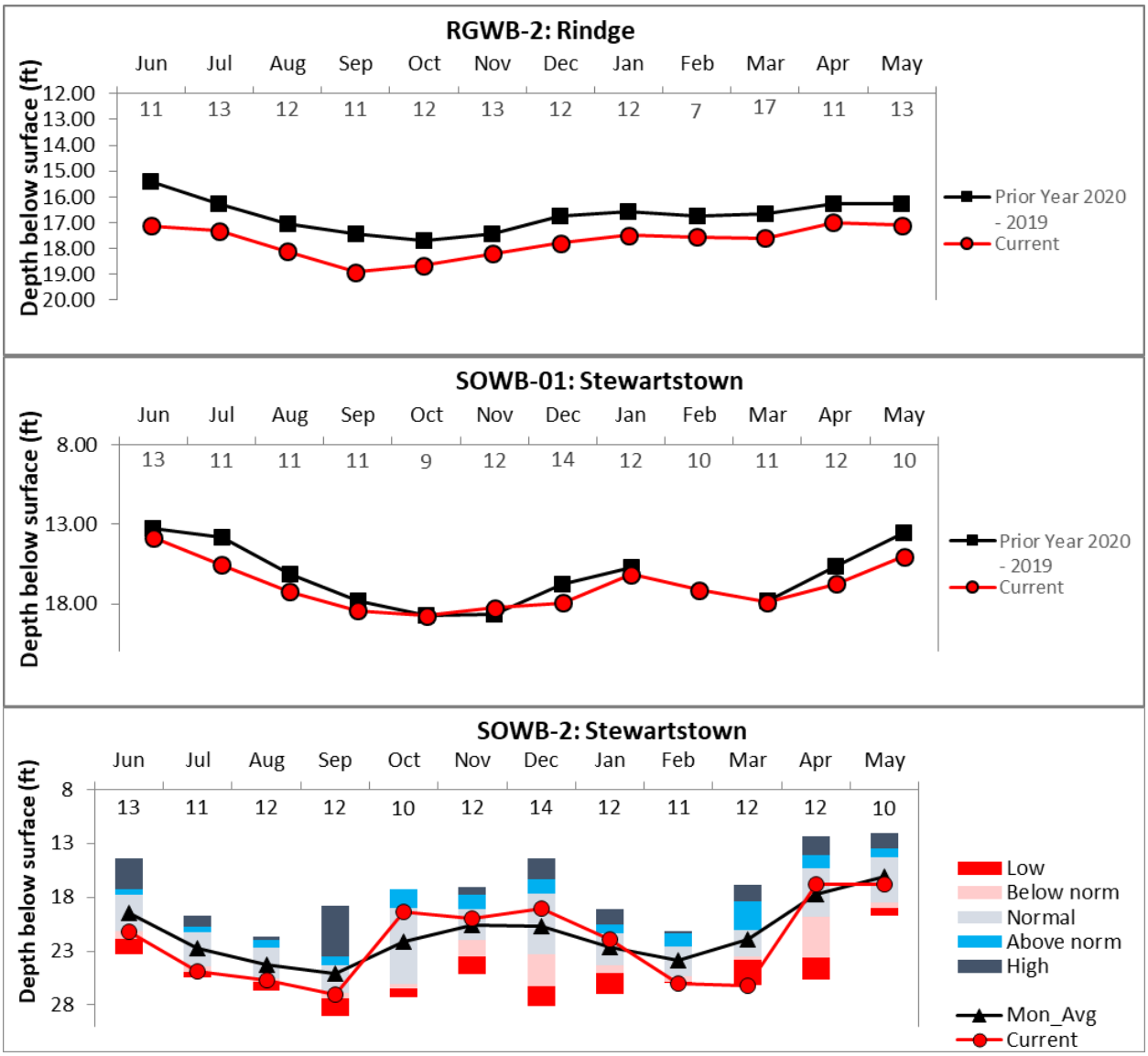



EAWB-02: East Kingston
Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May
12 10 14 12 12 11 13 12 11 13 12 12
Depth below surface (ft)
18 20 22 24 26 28
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current

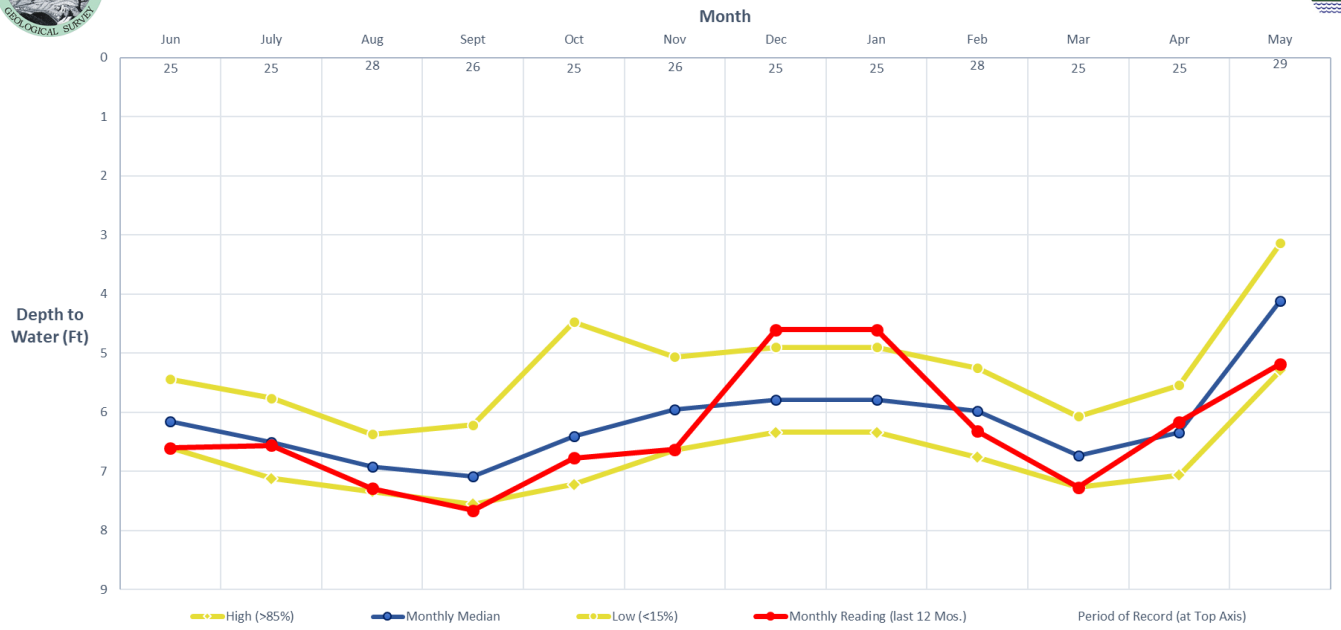

HTW-05: Hooksett
Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May
56 54 58 57 54 55 57 54 52 58 59 61
Depth below surface (ft)
39 44 49
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current


NWWB-1: Northwood
Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May
8 11 9 11 9 11 10 12 11 10 12 11
Depth below surface (ft)
-1.00 1.00 3.00 5.00 7.00 9.00
Prior Year 2020 - 2019
Current

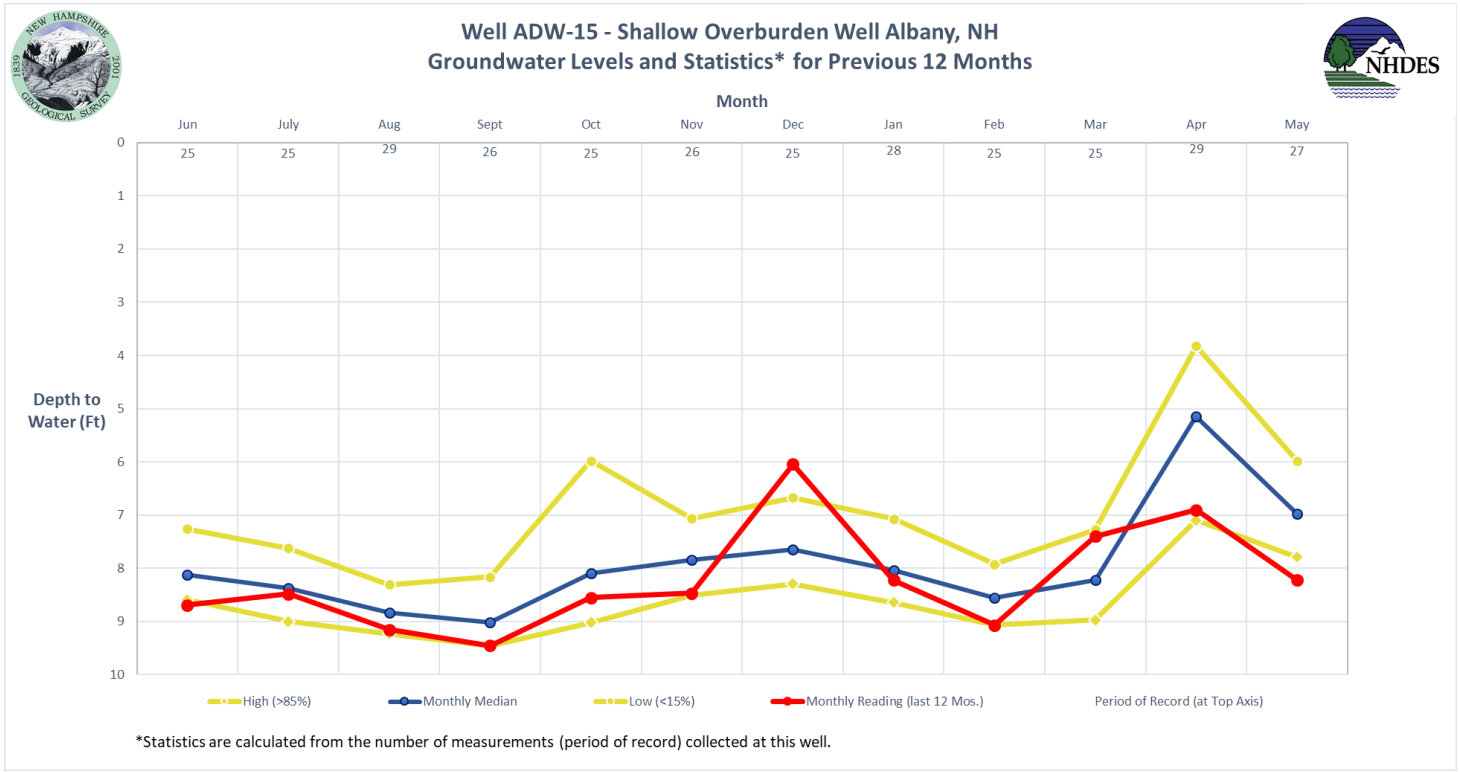

RGWB-1: Rindge
Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May
11 13 12 11 12 13 12 12 7 17 11 13
Depth below surface (ft)
10.00 11.00 12.00 13.00 14.00 15.00 16.00 17.00
Prior Year 2020 - 2019
Current

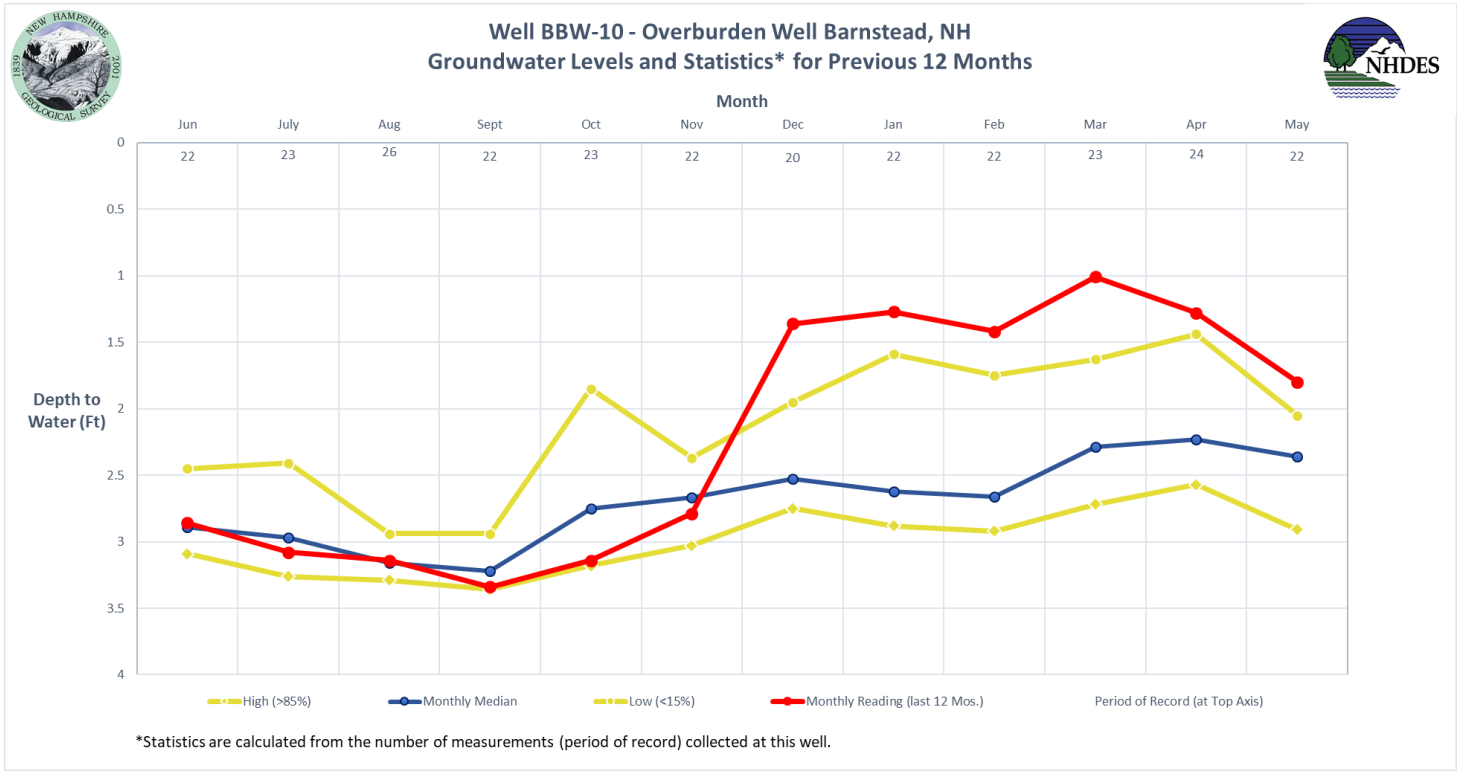

RGWB-2: Rindge
Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May
11 13 12 11 12 13 12 12 7 17 11 13
Depth below surface (ft)
12.00 13.00 14.00 15.00 16.00 17.00 18.00 19.00 20.00
Prior Year 2020 - 2019
Current
SOWB-01: Stewartstown
Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May
13 11 11 11 9 12 14 12 10 11 12 10
Depth below surface (ft)
8.00 13.00 18.00
Prior Year 2020 - 2019
Current
SOWB-2: Stewartstown
Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May
13 11 12 12 10 12 14 12 11 12 12 10
Depth below surface (ft)
8 13 18 23 28
Low
Below norm
Normal
Above norm
High
Mon_Avg
Current

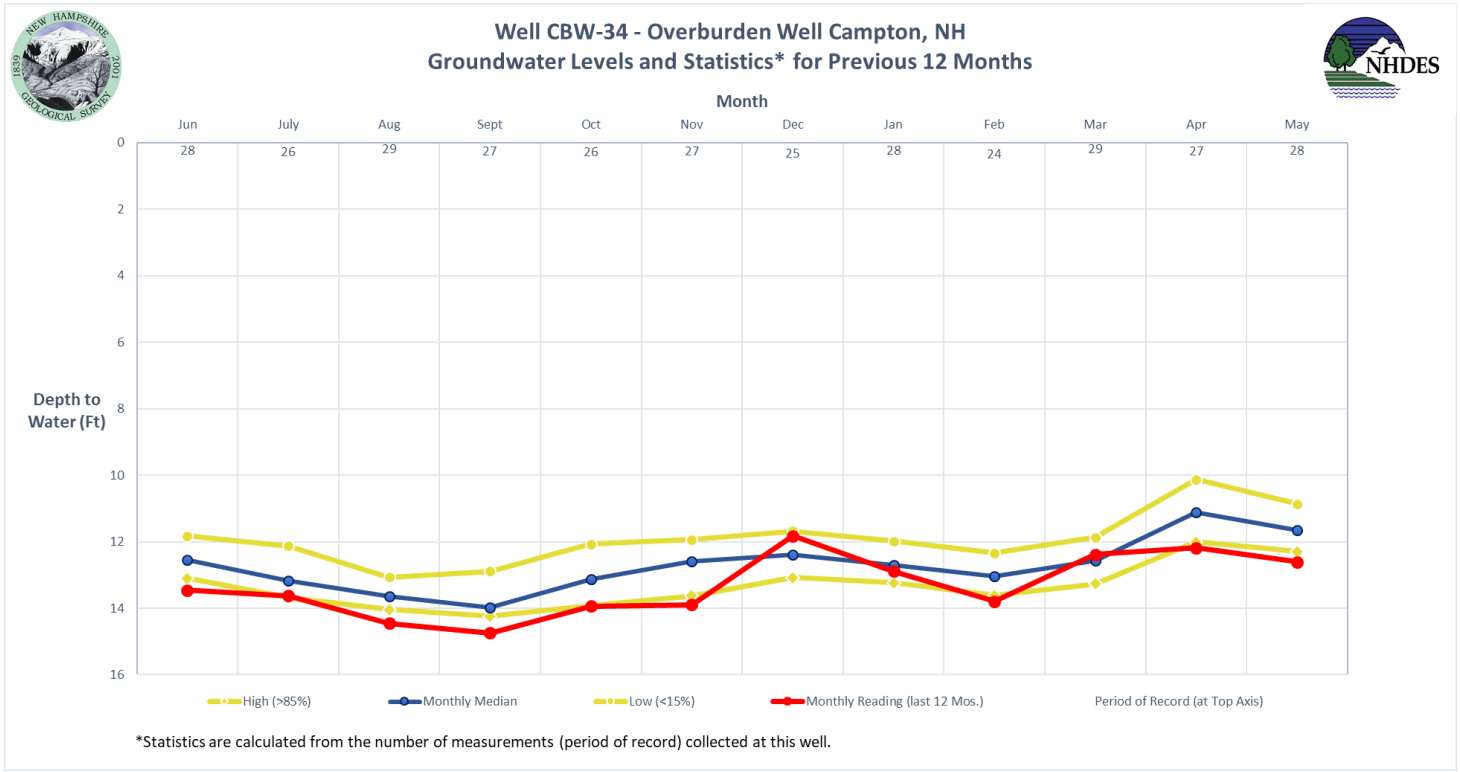
Well ADW-14 - Deep Overburden Well Albany, NH
Groundwater Levels and Statistics* for Previous 12 Months



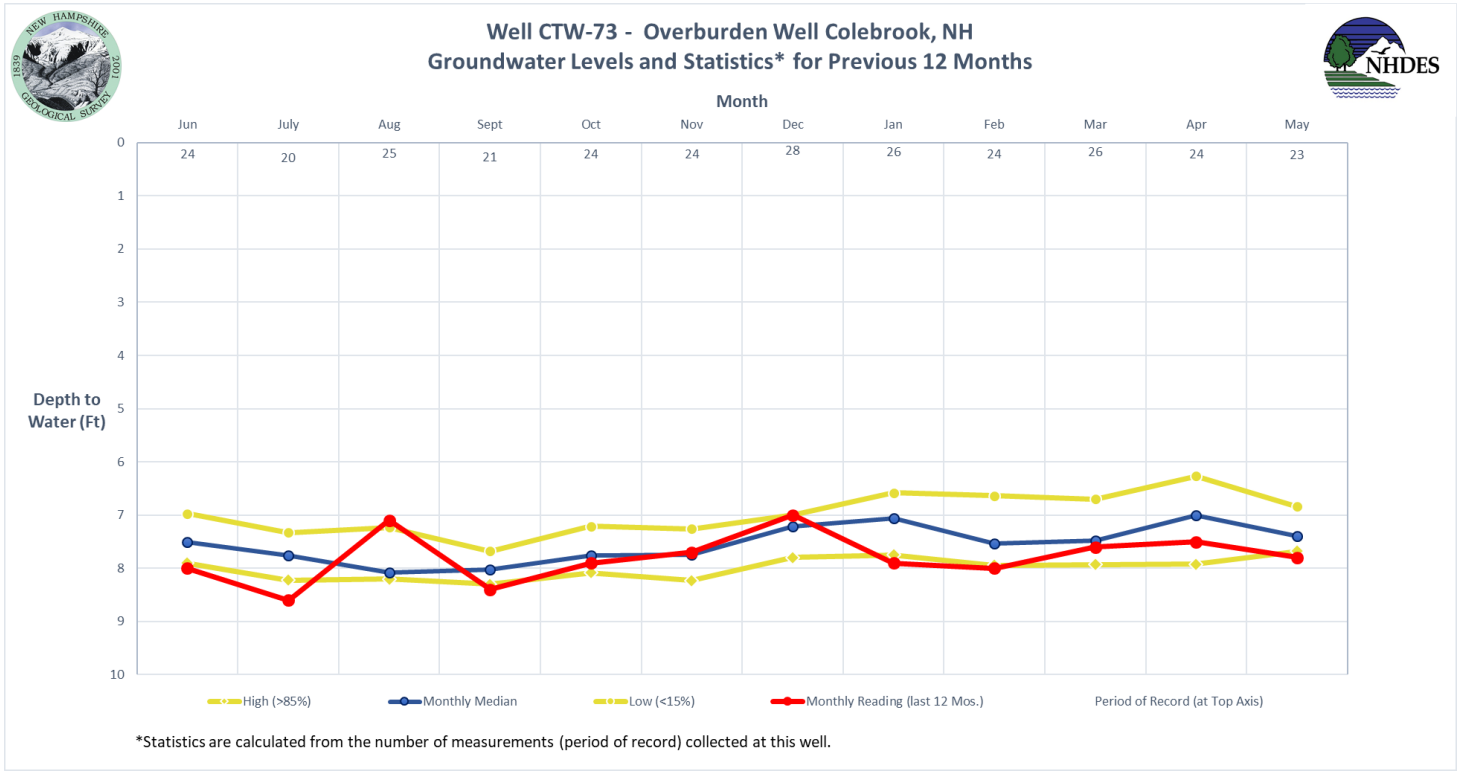
*Statistics are calculated from the number of measurements (period of record) collected at this well.

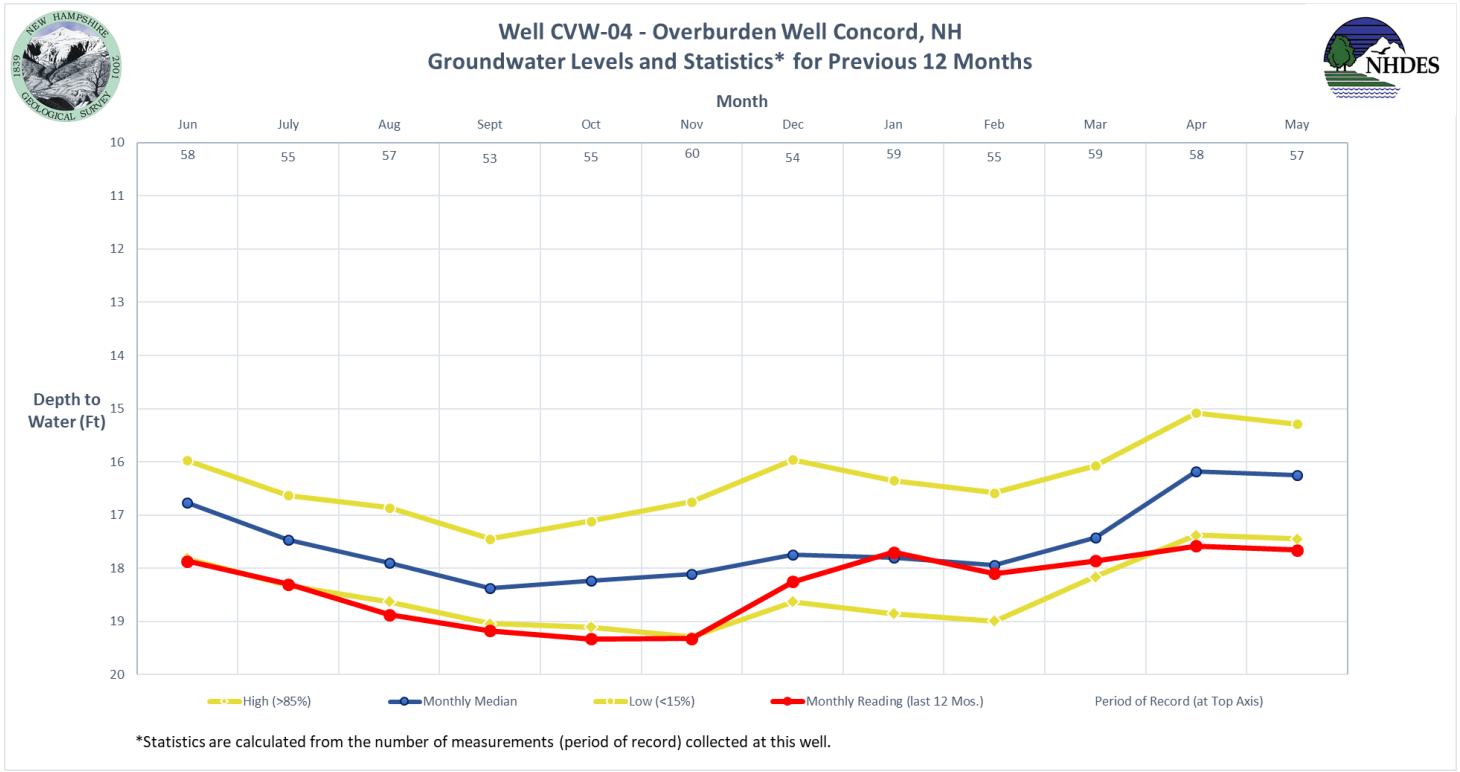

Well ADW-15 - Shallow Overburden Well Albany, NH
Groundwater Levels and Statistics* for Previous 12 Months
Month
Jun
July
Aug
Sept
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
25
25
29
26
25
26
25
28
25
25
29
27
Depth to Water (Ft)
0
1
2
3
4
5
6
7
8
9
10
High (>85%)
Monthly Median
Low (<15%)
Monthly Reading (last 12 Mos.)
Period of Record (at Top Axis)
*Statistics are calculated from the number of measurements (period of record) collected at this well.

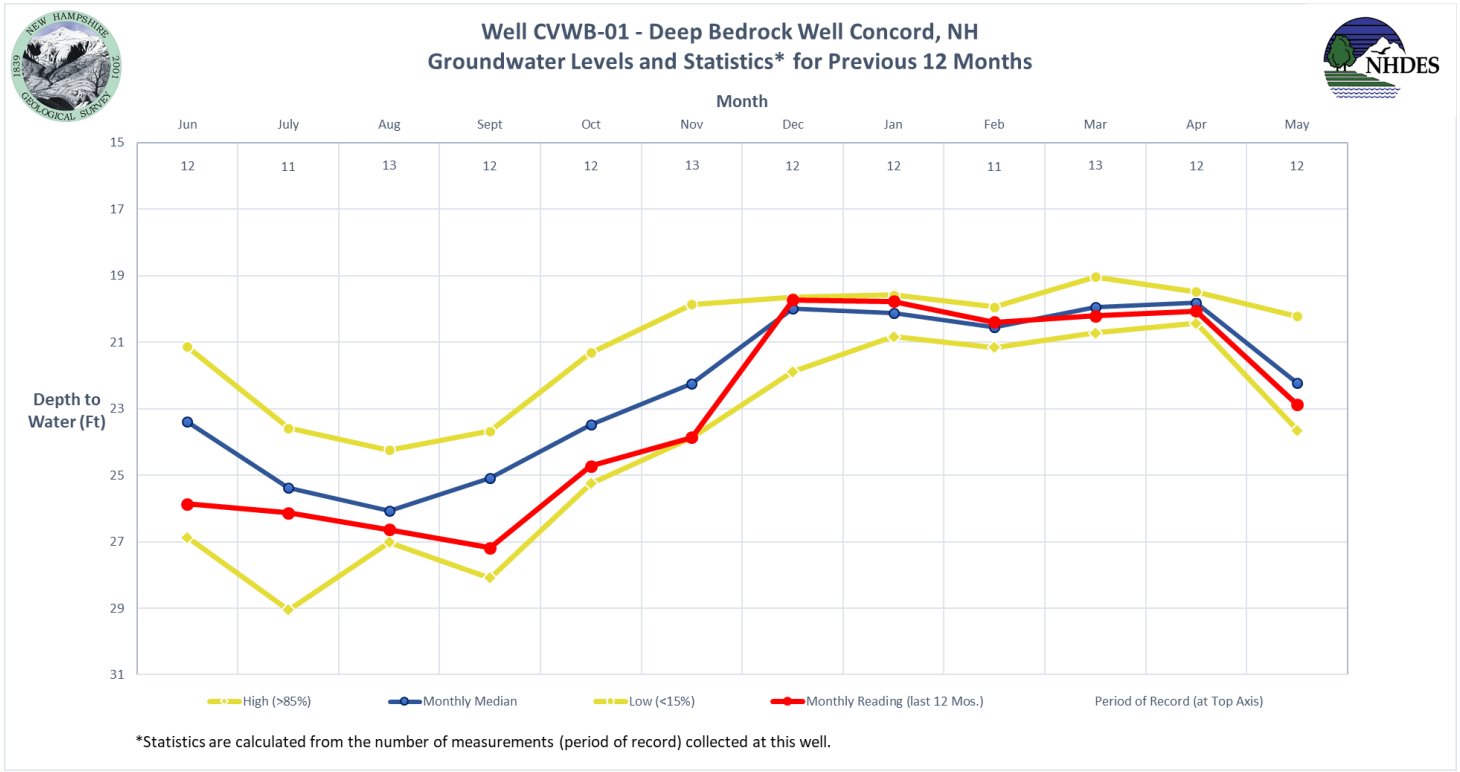

Well BBW-10 - Overburden Well Barnstead, NH
Groundwater Levels and Statistics* for Previous 12 Months
Month
Jun
July
Aug
Sept
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
22
23
26
22
23
22
20
22
22
23
24
22
Depth to Water (Ft)
0
0.5
1
1.5
2
2.5
3
3.5
4
High (>85%)
Monthly Median
Low (<15%)
Monthly Reading (last 12 Mos.)
Period of Record (at Top Axis)
*Statistics are calculated from the number of measurements (period of record) collected at this well.



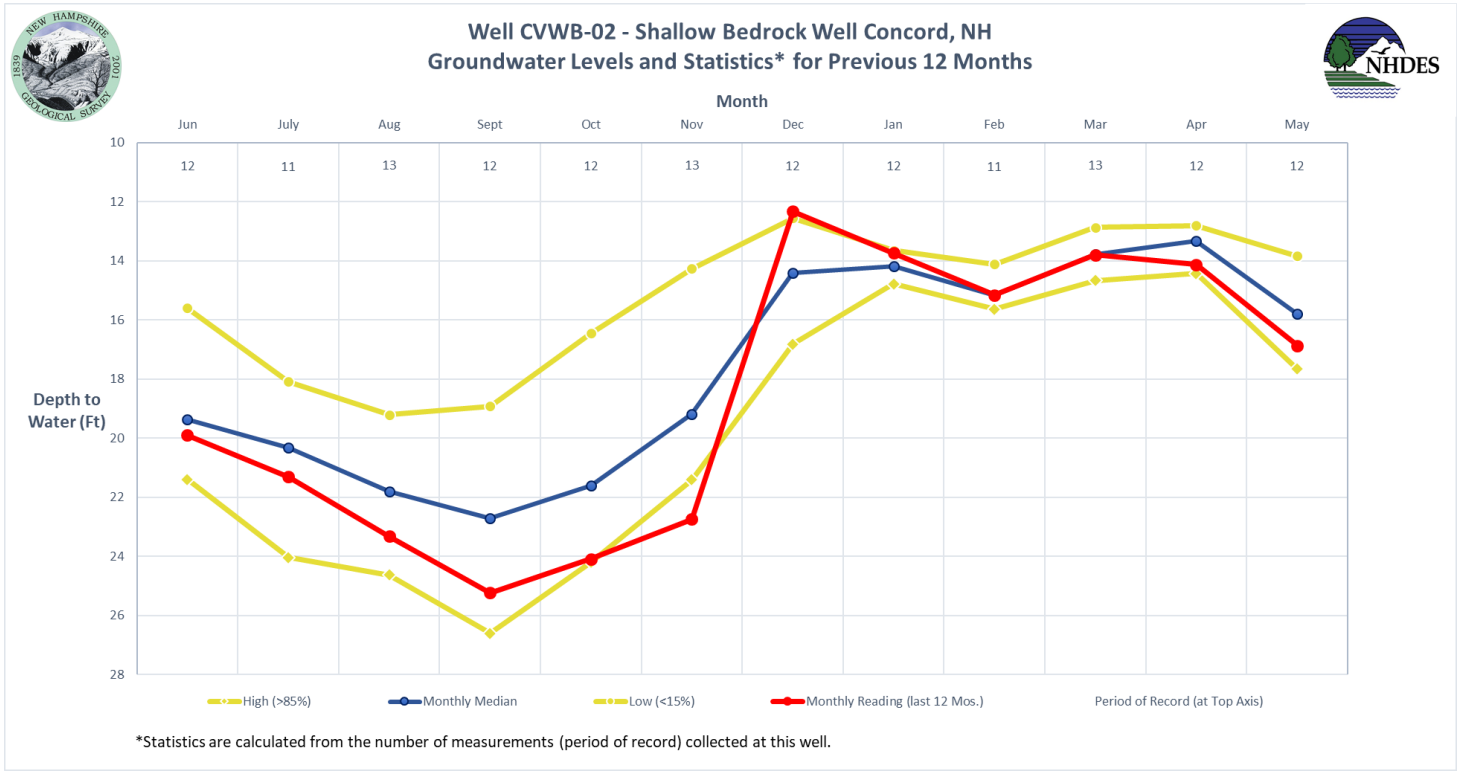
*Statistics are calculated from the number of measurements (period of record) collected at this well.


Well CTW-73 - Overburden Well Colebrook, NH
Groundwater Levels and Statistics* for Previous 12 Months
Month
Jun
July
Aug
Sept
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
24
20
25
21
24
24
28
26
24
26
24
23
Depth to Water (Ft)
0
1
2
3
4
5
6
7
8
9
10
High (>85%)
Monthly Median
Low (<15%)
Monthly Reading (last 12 Mos.)
Period of Record (at Top Axis)
*Statistics are calculated from the number of measurements (period of record) collected at this well.

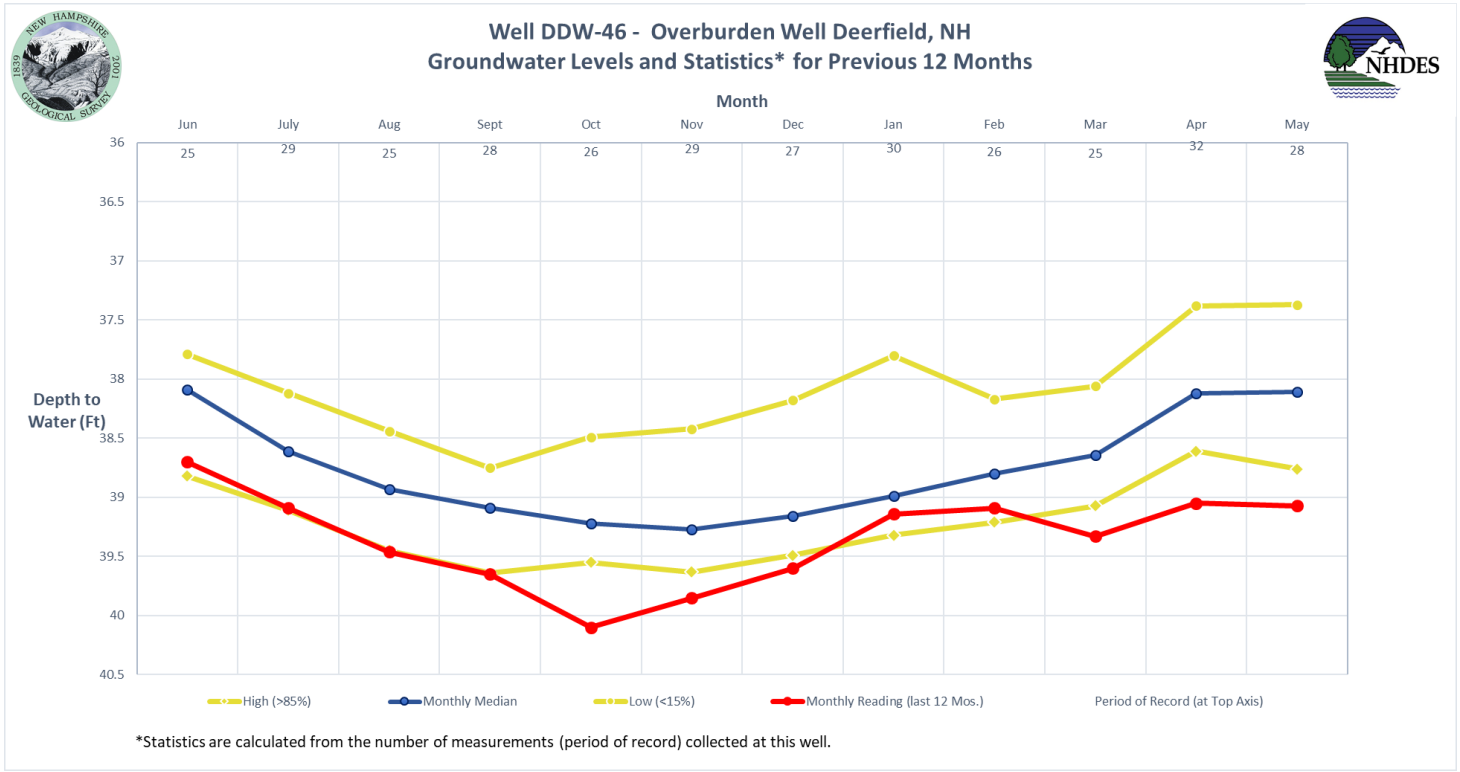

Well CVW-04 - Overburden Well Concord, NH
Groundwater Levels and Statistics* for Previous 12 Months
Month
Jun
July
Aug
Sept
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
58
55
57
53
55
60
54
59
55
59
58
57
Depth to Water (Ft)
10
11
12
13
14
15
16
17
18
19
20
High (>85%)
Monthly Median
Low (<15%)
Monthly Reading (last 12 Mos.)
Period of Record (at Top Axis)
*Statistics are calculated from the number of measurements (period of record) collected at this well.



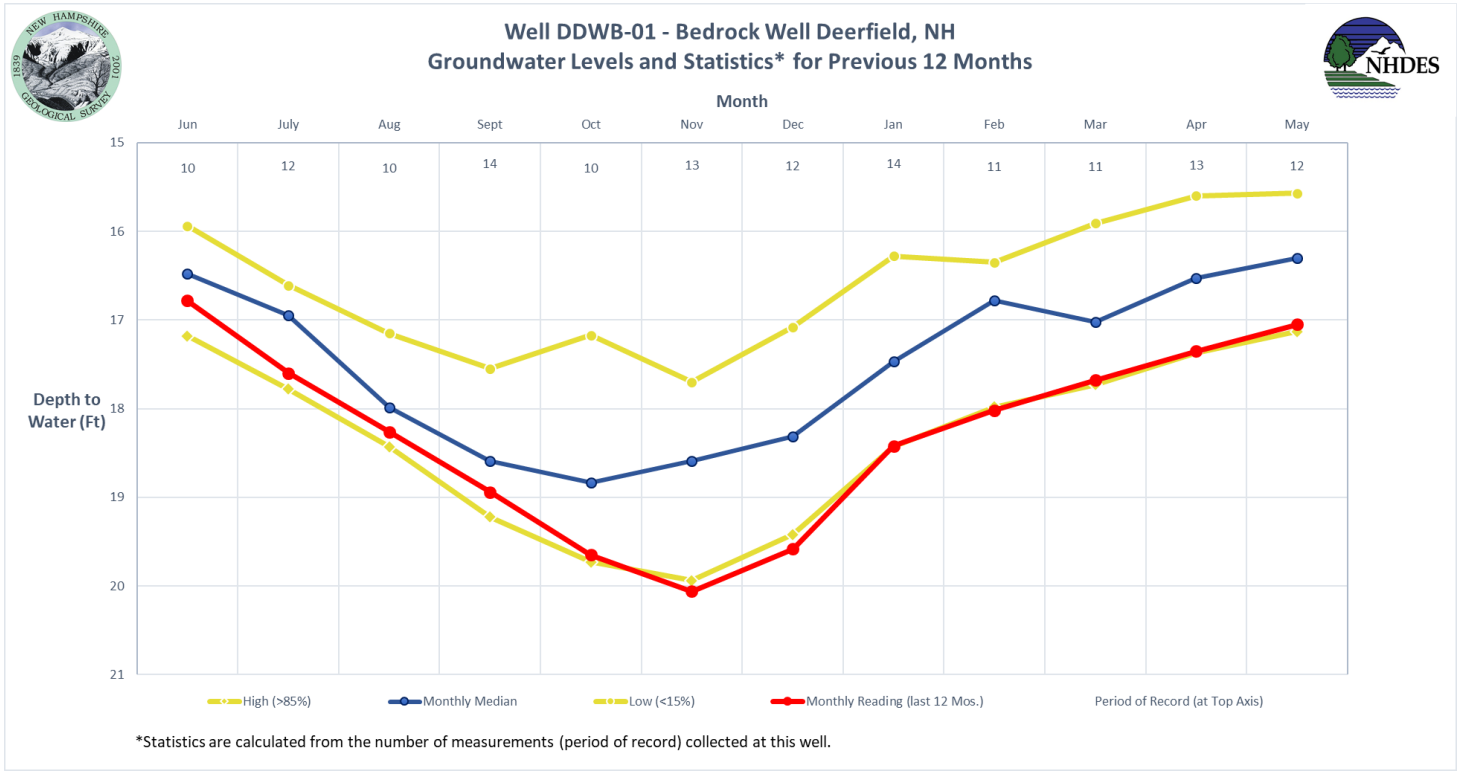
*Statistics are calculated from the number of measurements (period of record) collected at this well.

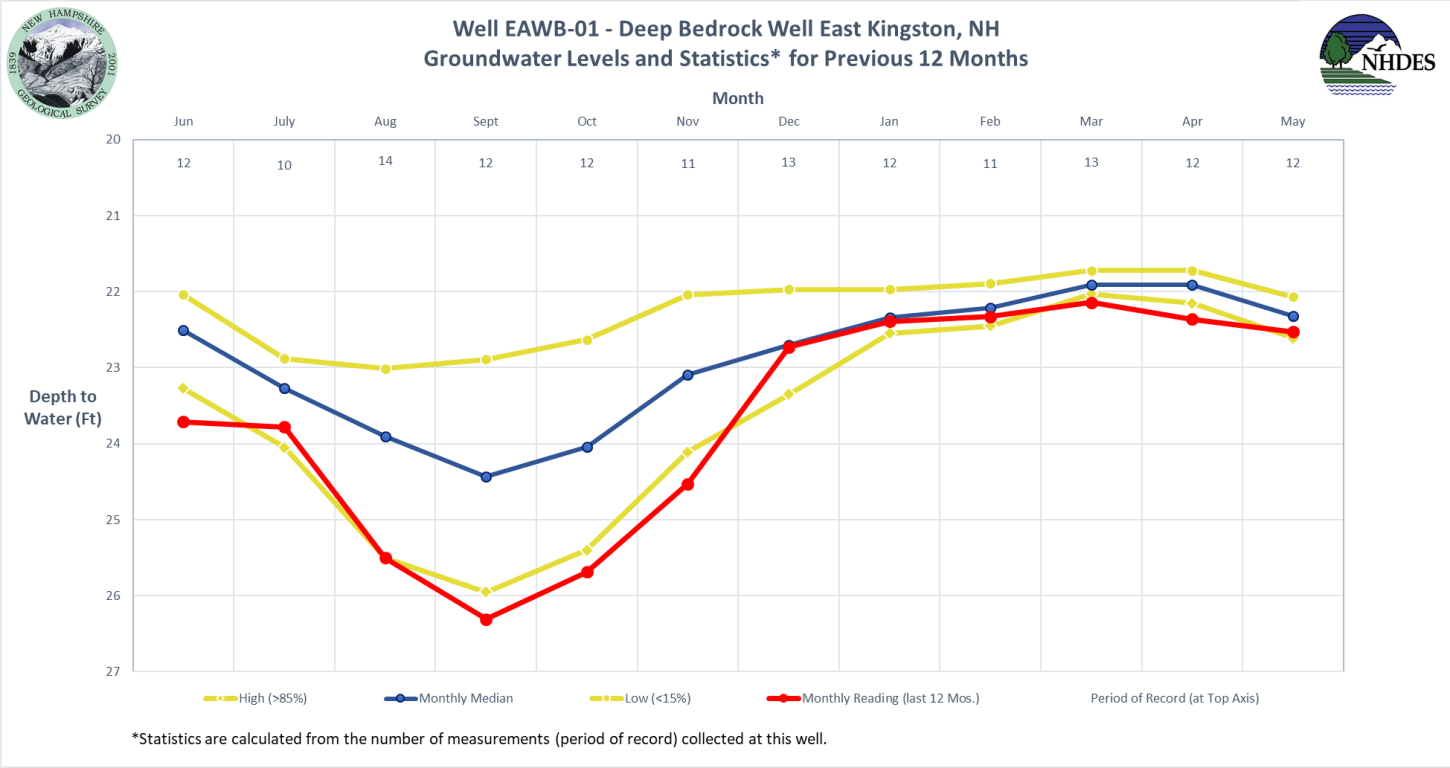


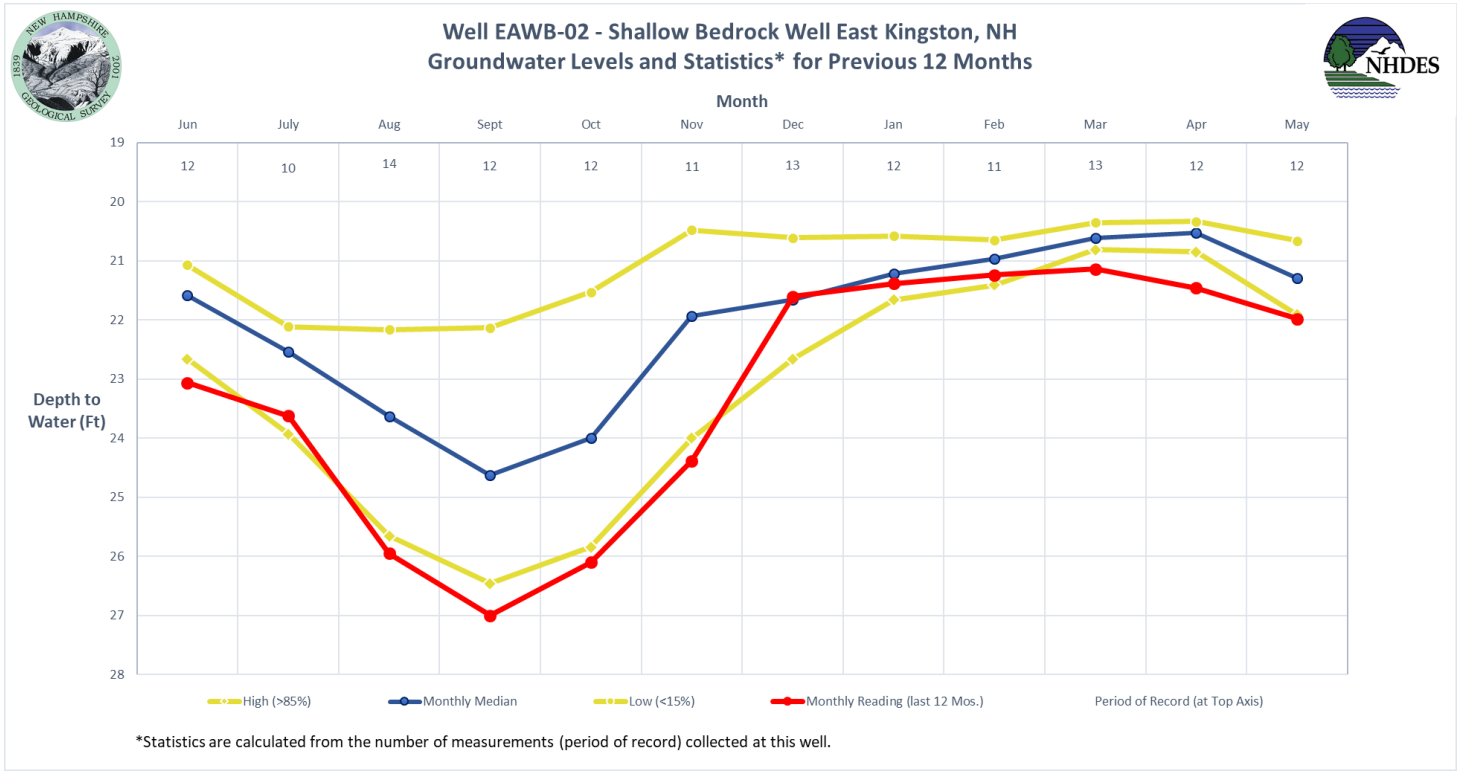
*Statistics are calculated from the number of measurements (period of record) collected at this well.



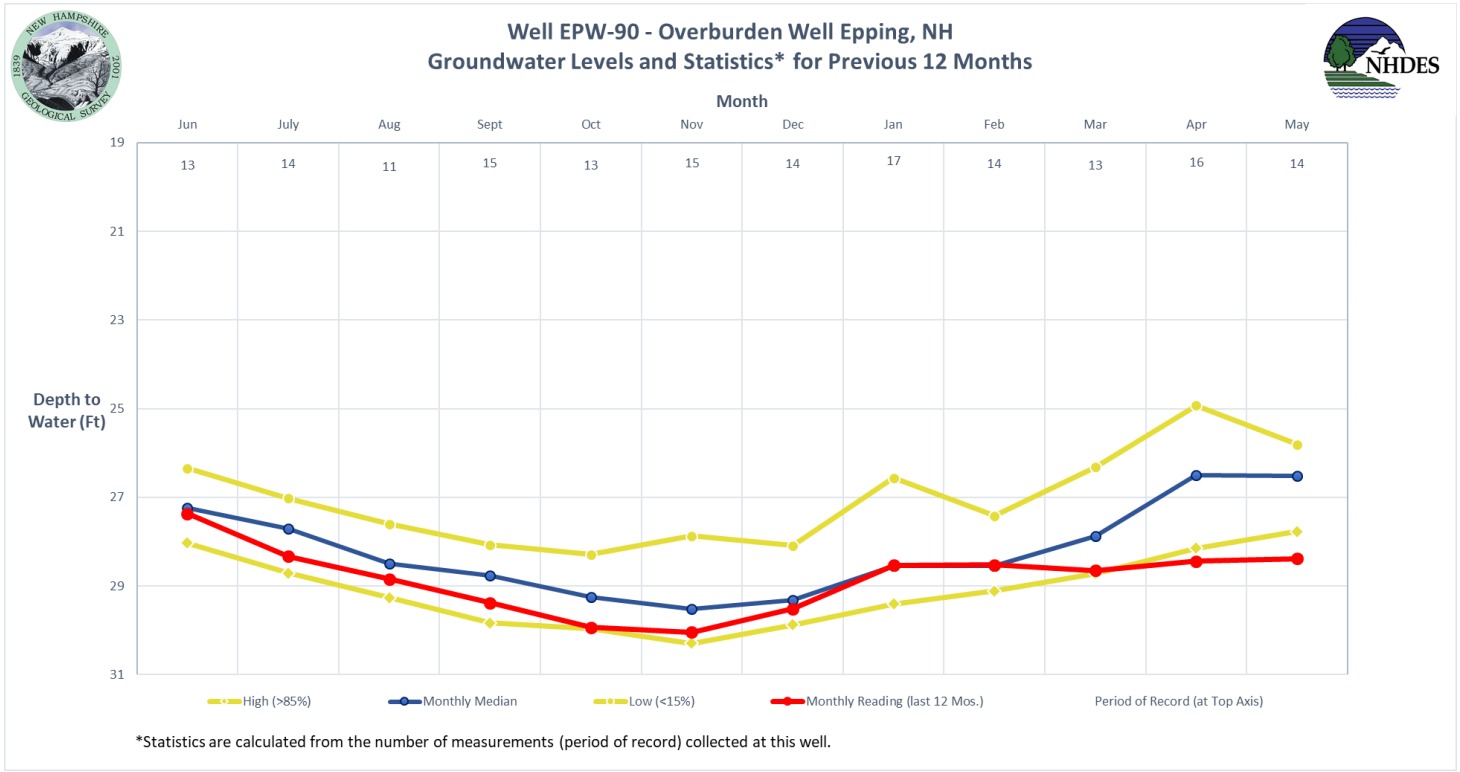
*Statistics are calculated from the number of measurements (period of record) collected at this well.


Well DDWB-01 - Bedrock Well Deerfield, NH
Groundwater Levels and Statistics* for Previous 12 Months
Month
Jun
July
Aug
Sept
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
10
12
10
14
10
13
12
14
11
11
13
12
15
16
17
18
19
20
21
Depth to Water (Ft)
High (>85%)
Monthly Median
Low (<15%)
Monthly Reading (last 12 Mos.)
Period of Record (at Top Axis)
*Statistics are calculated from the number of measurements (period of record) collected at this well.

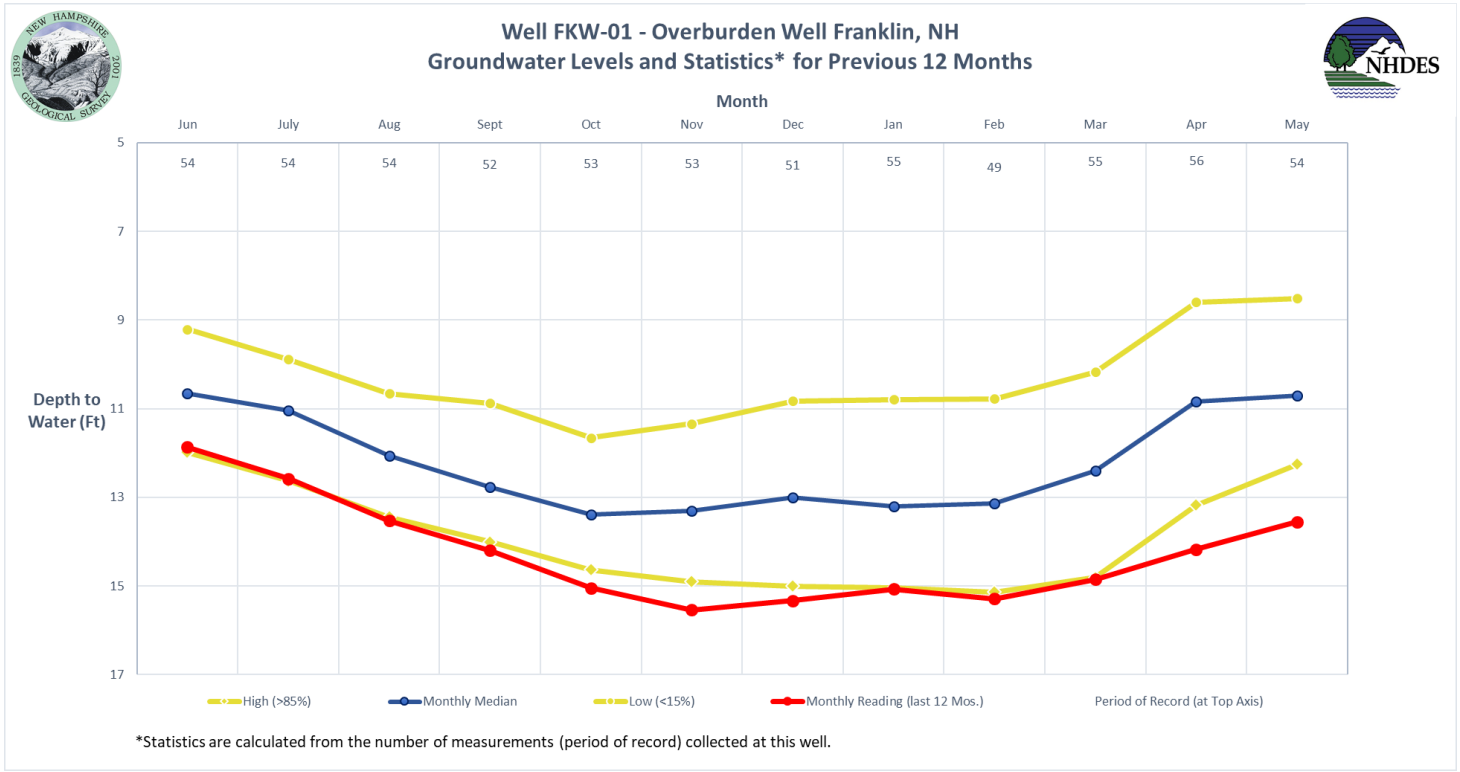

Well EAWB-01 - Deep Bedrock Well East Kingston, NH
Groundwater Levels and Statistics* for Previous 12 Months
NHDES
Month
Jun
July
Aug
Sept
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
12
10
14
12
12
11
13
12
11
13
12
12
20
21
22
23
24
25
26
27
Depth to Water (Ft)
High (>85%)
Monthly Median
Low (<15%)
Monthly Reading (last 12 Mos.)
Period of Record (at Top Axis)
*Statistics are calculated from the number of measurements (period of record) collected at this well.



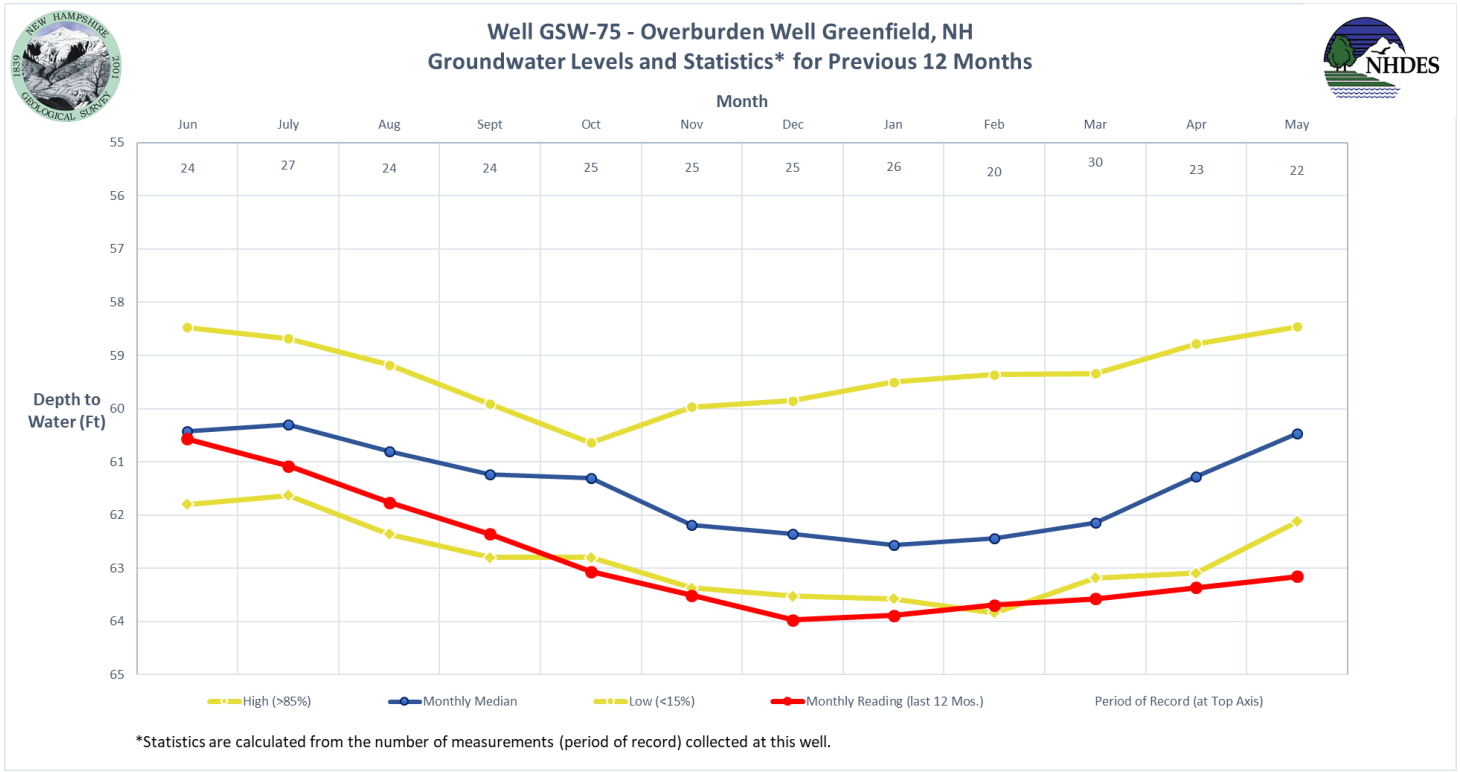
*Statistics are calculated from the number of measurements (period of record) collected at this well.

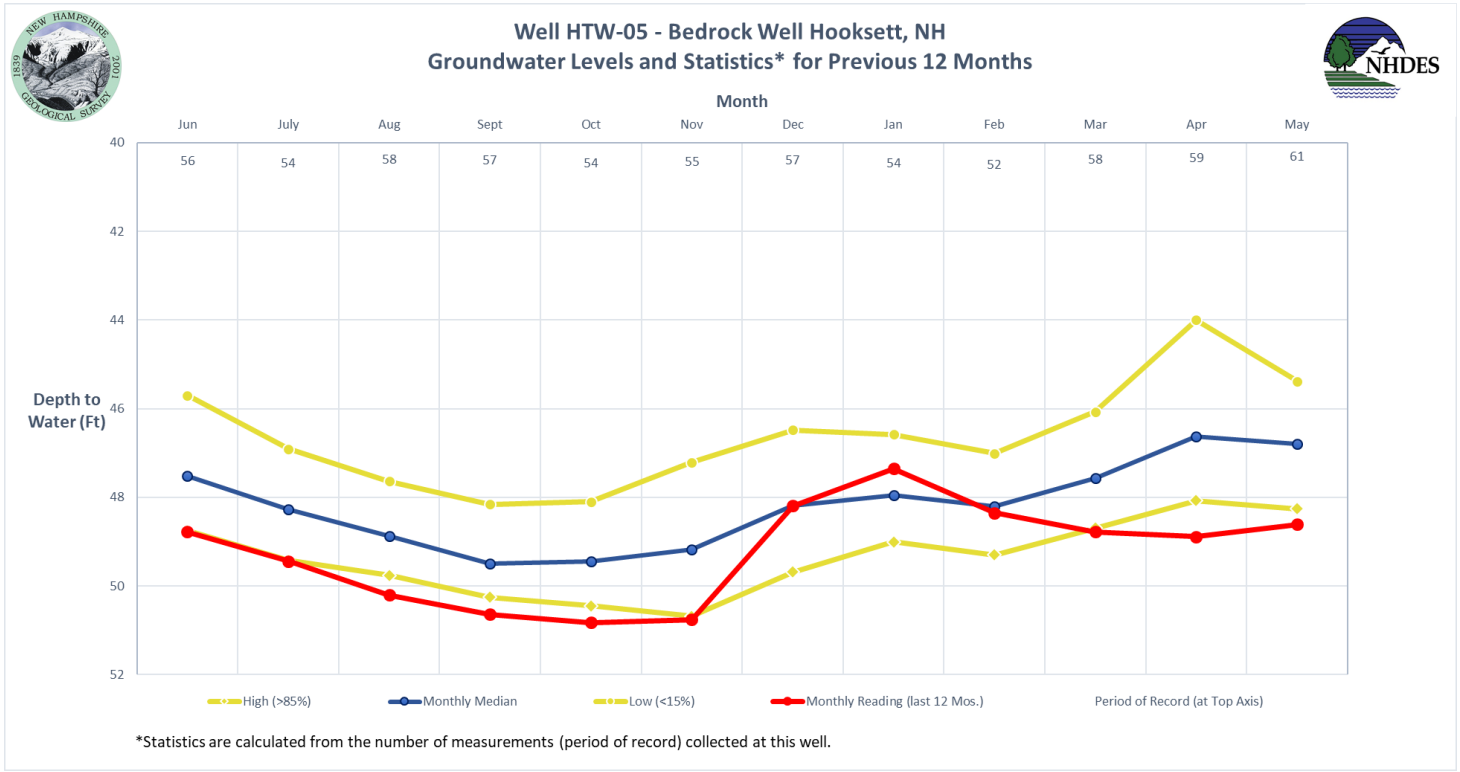


*Statistics are calculated from the number of measurements (period of record) collected at this well.

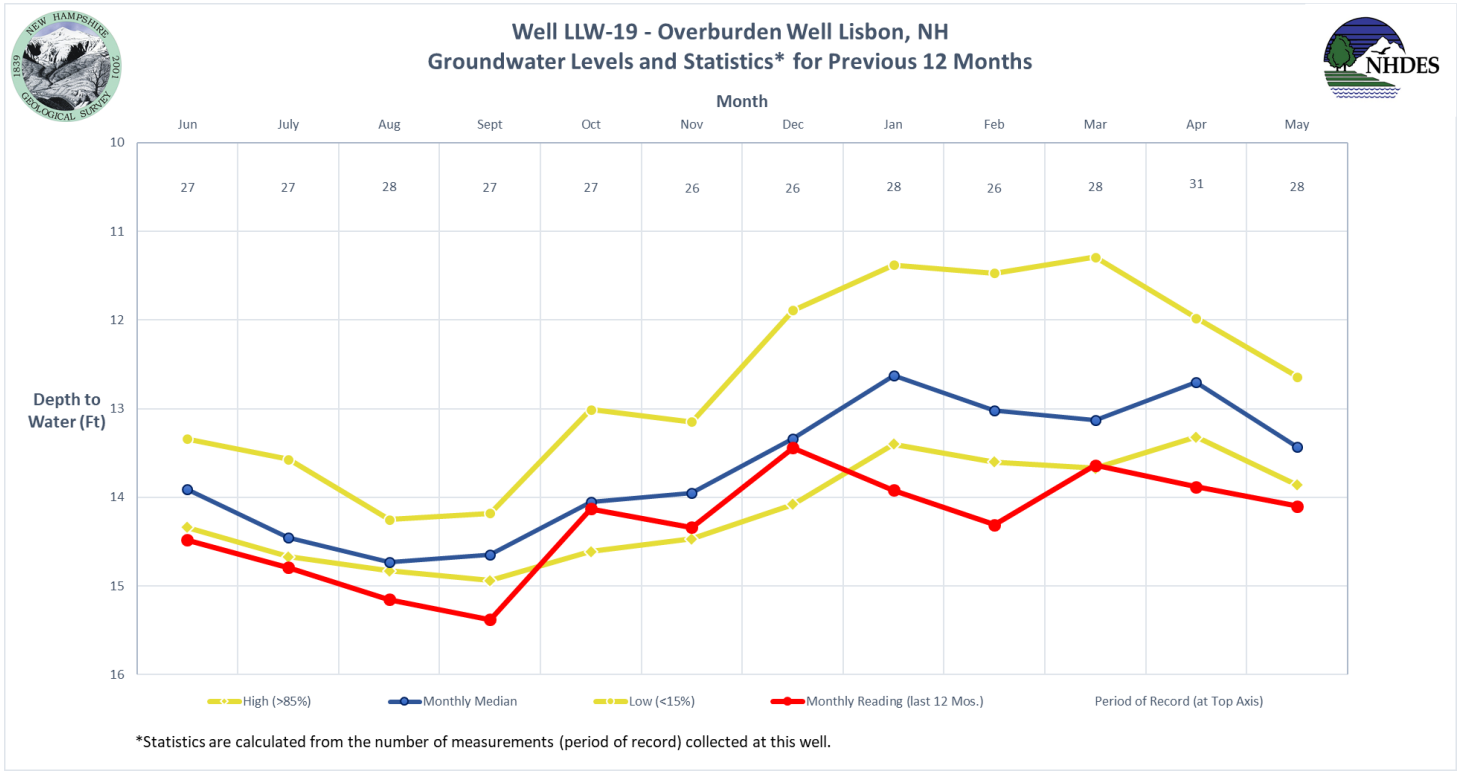


*Statistics are calculated from the number of measurements (period of record) collected at this well.

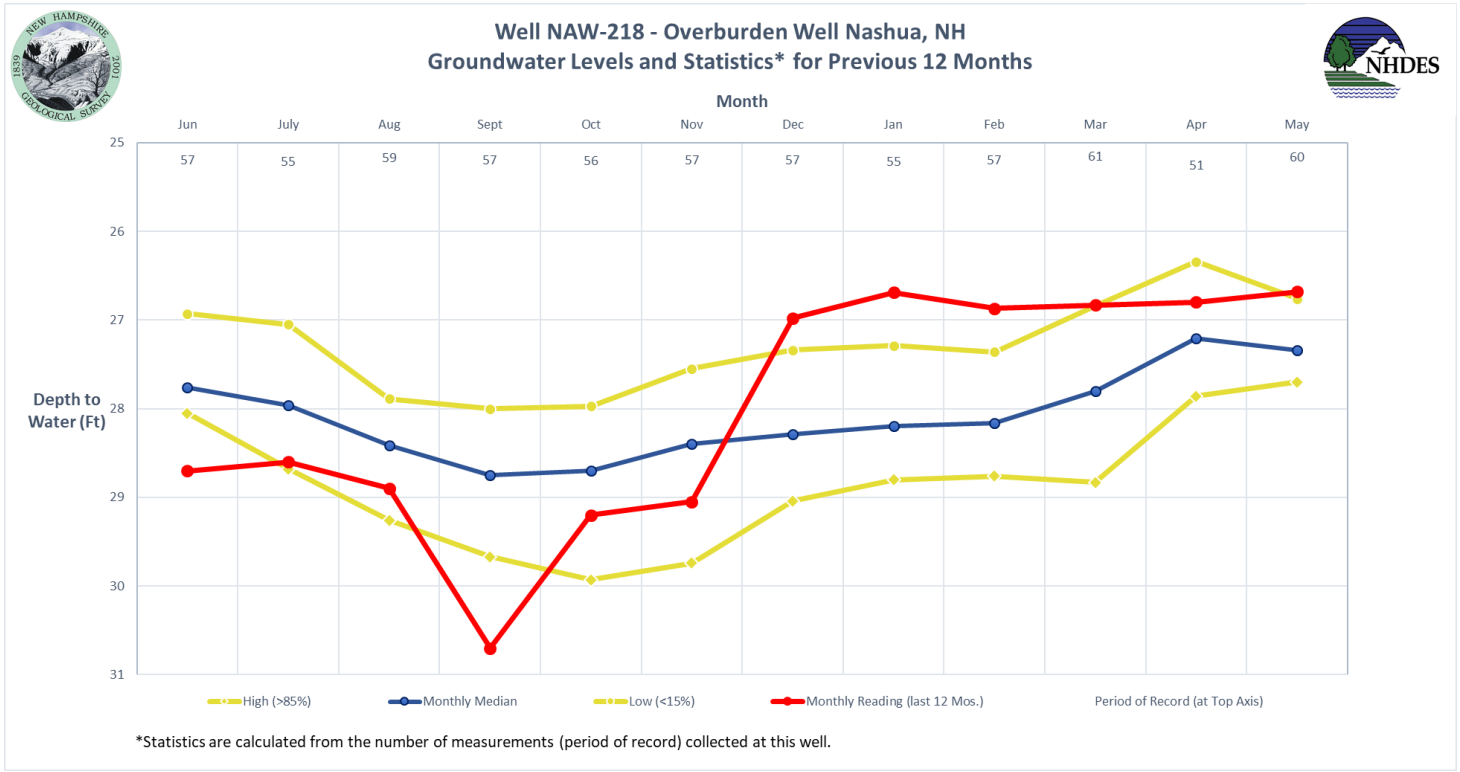

Well GSW-75 - Overburden Well Greenfield, NH
Groundwater Levels and Statistics* for Previous 12 Months
NHDES
Month
Jun
July
Aug
Sept
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
24
27
24
24
25
25
25
26
20
30
23
22
55
56
57
58
59
60
61
62
63
64
65
Depth to Water (Ft)
High (>85%)
Monthly Median
Low (<15%)
Monthly Reading (last 12 Mos.)
Period of Record (at Top Axis)
*Statistics are calculated from the number of measurements (period of record) collected at this well.



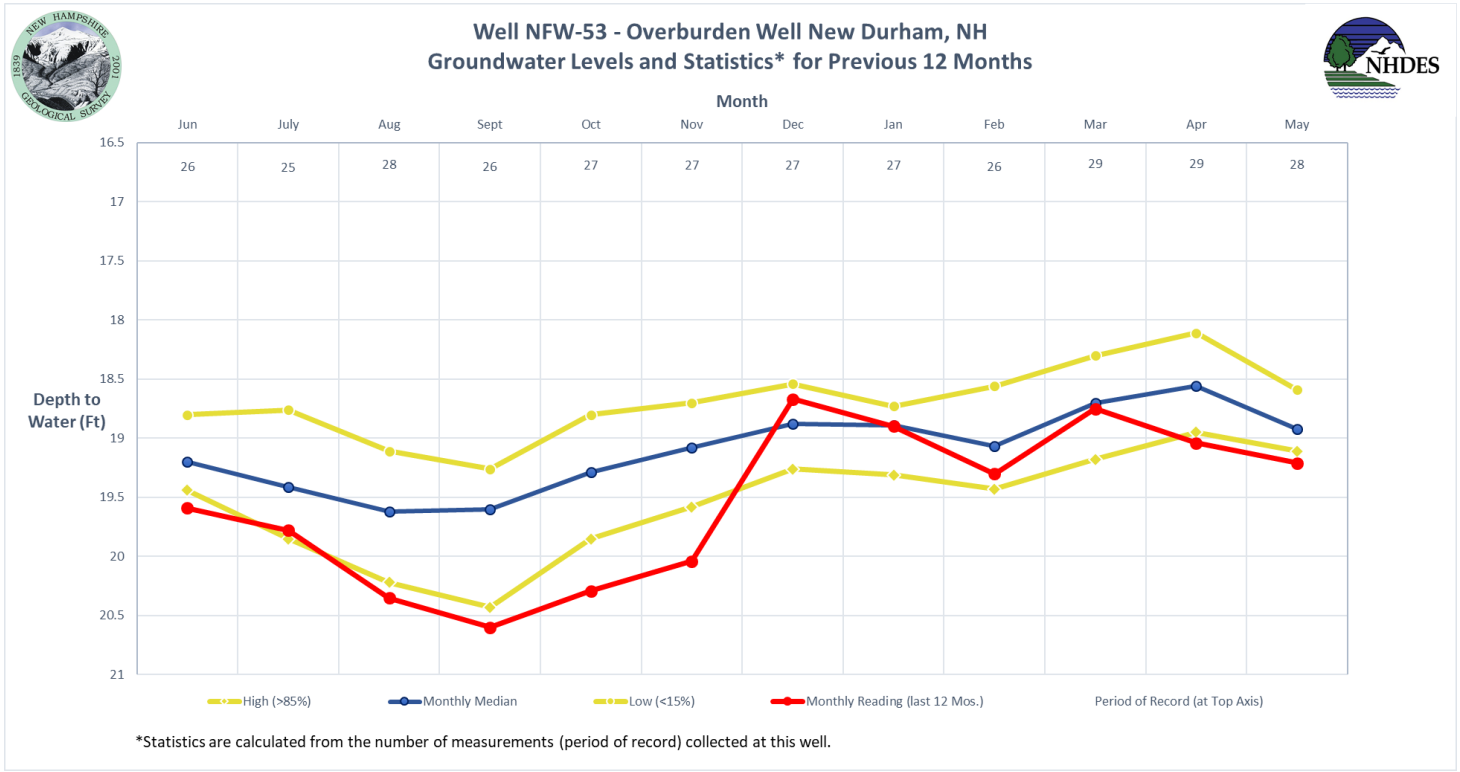
*Statistics are calculated from the number of measurements (period of record) collected at this well.



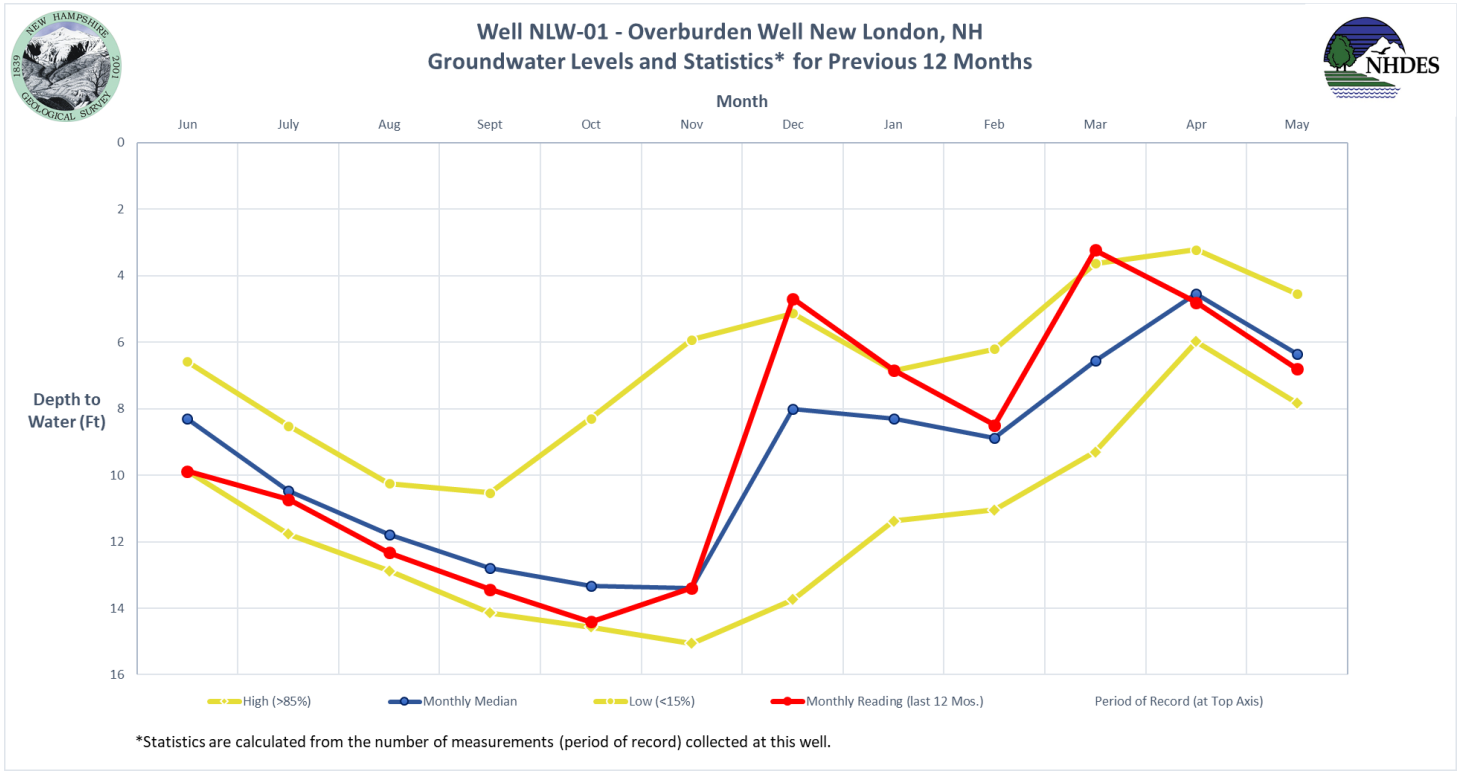
*Statistics are calculated from the number of measurements (period of record) collected at this well.

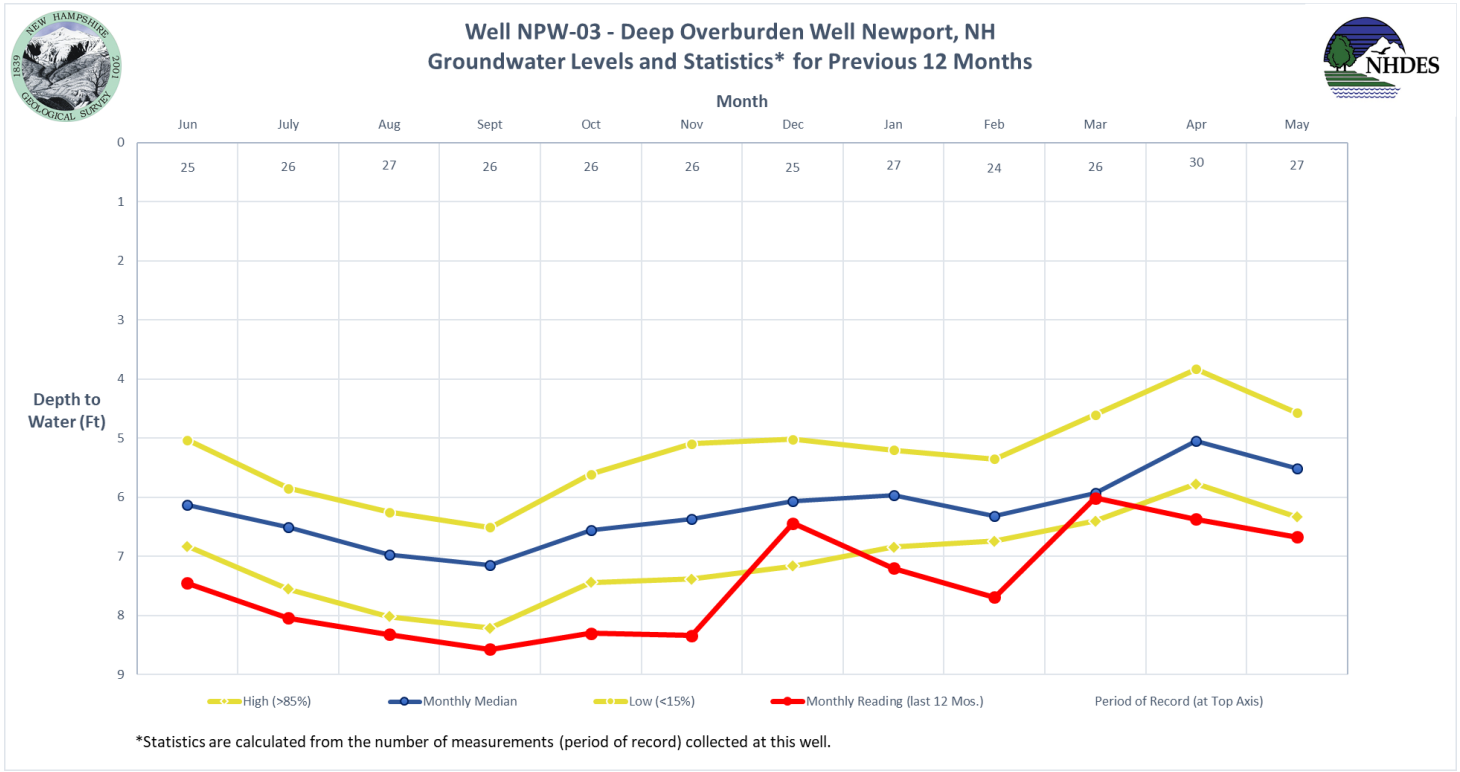


*Statistics are calculated from the number of measurements (period of record) collected at this well.

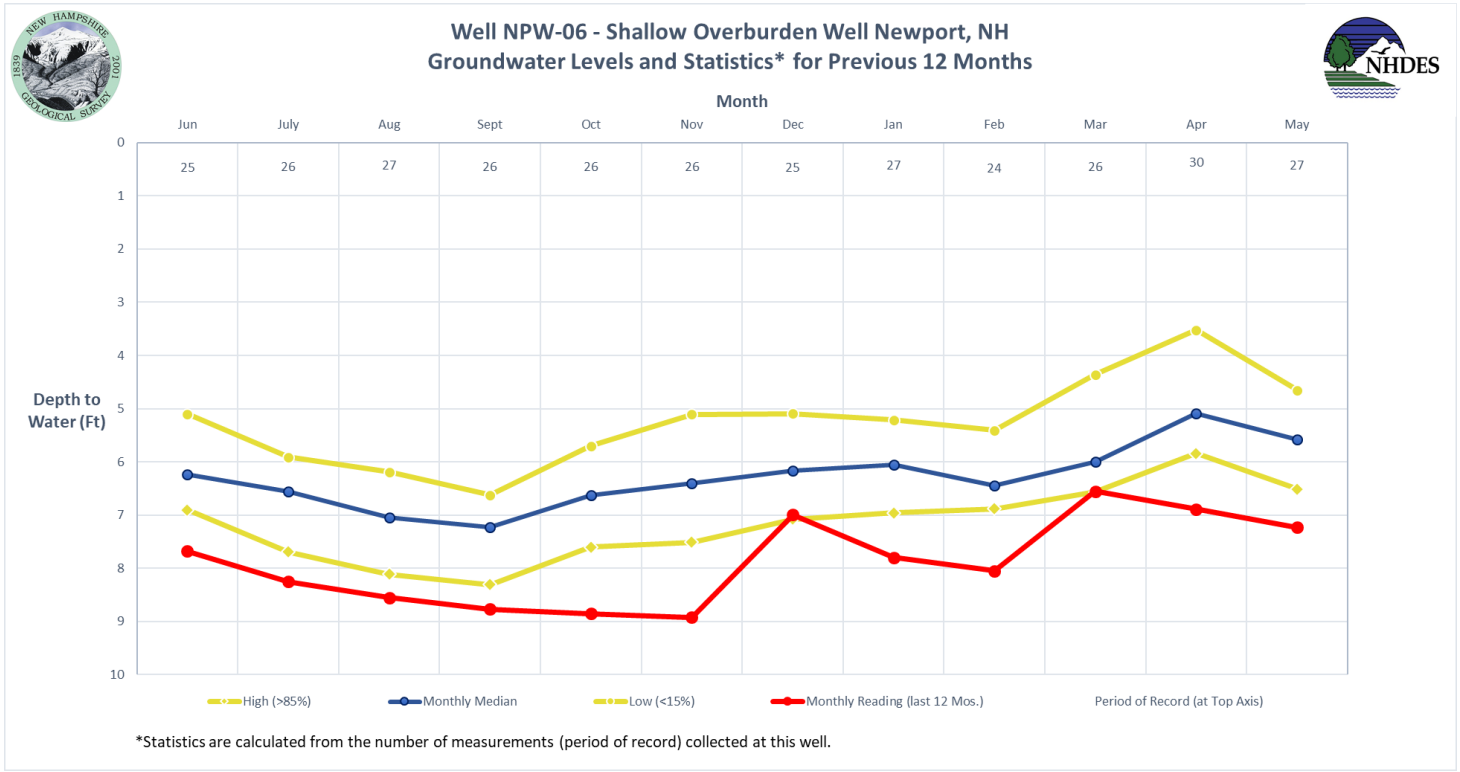


*Statistics are calculated from the number of measurements (period of record) collected at this well.

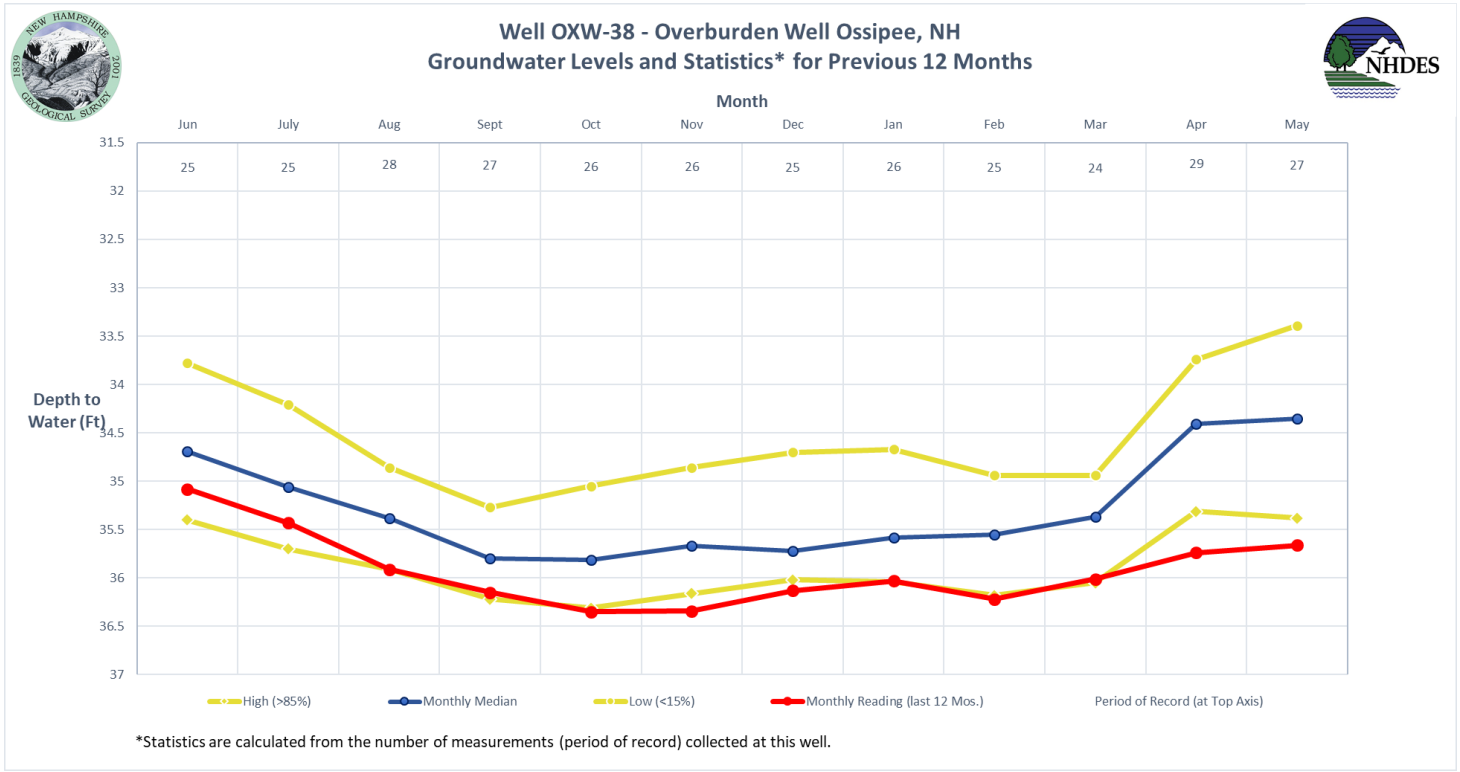

Well NLW-01 - Overburden Well New London, NH
Groundwater Levels and Statistics* for Previous 12 Months
Month
Jun
July
Aug
Sept
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Depth to Water (Ft)
0
2
4
6
8
10
12
14
16
High (>85%)
Monthly Median
Low (<15%)
Monthly Reading (last 12 Mos.)
Period of Record (at Top Axis)
*Statistics are calculated from the number of measurements (period of record) collected at this well.

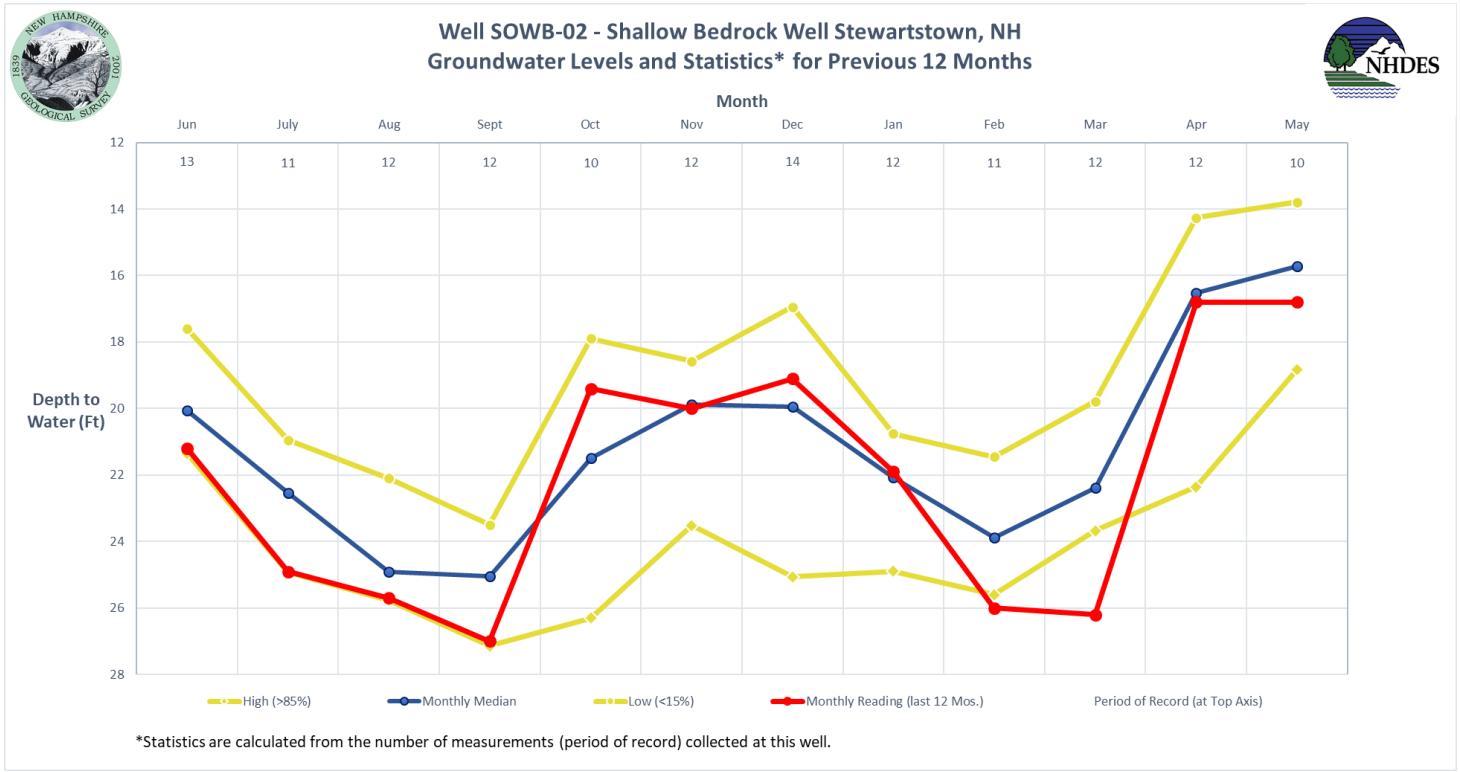


*Statistics are calculated from the number of measurements (period of record) collected at this well.

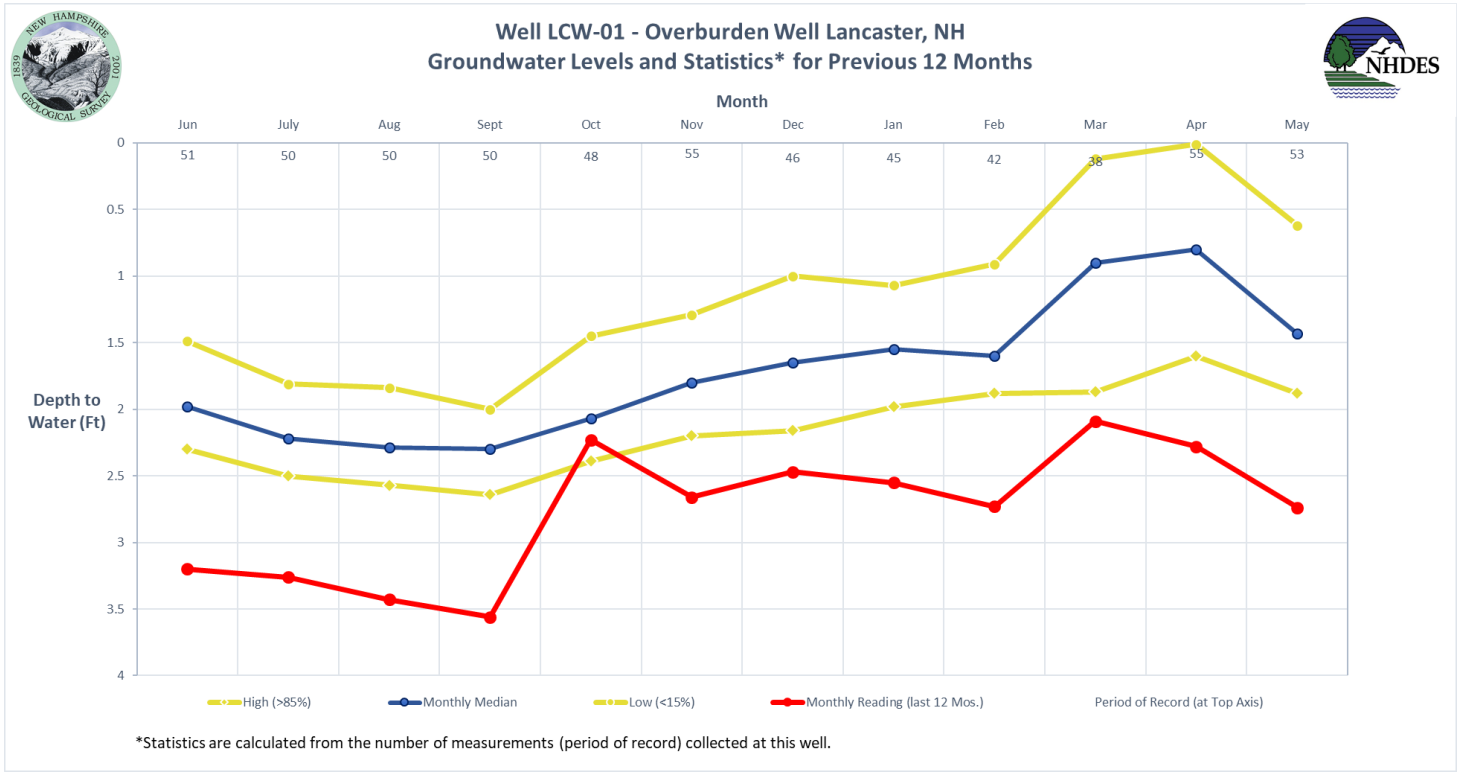


*Statistics are calculated from the number of measurements (period of record) collected at this well.


Well OXW-38 - Overburden Well Ossipee, NH
Groundwater Levels and Statistics* for Previous 12 Months
Month
Jun
July
Aug
Sept
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
25
25
28
27
26
26
25
26
25
24
29
27
31.5
32
32.5
33
33.5
34
34.5
35
35.5
36
36.5
37
Depth to Water (Ft)
High (>85%)
Monthly Median
Low (<15%)
Monthly Reading (last 12 Mos.)
Period of Record (at Top Axis)
*Statistics are calculated from the number of measurements (period of record) collected at this well.



*Statistics are calculated from the number of measurements (period of record) collected at this well.


Well LCW-01 - Overburden Well Lancaster, NH
Groundwater Levels and Statistics* for Previous 12 Months
NHDES
Month
Jun
July
Aug
Sept
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
51
50
50
50
48
55
46
45
42
38
55
53
0
0.5
1
1.5
2
2.5
3
3.5
4
Depth to Water (Ft)
High (>85%)
Monthly Median
Low (<15%)
Monthly Reading (last 12 Mos.)
Period of Record (at Top Axis)
*Statistics are calculated from the number of measurements (period of record) collected at this well.